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DETROIT MEDICAL JOURNAL

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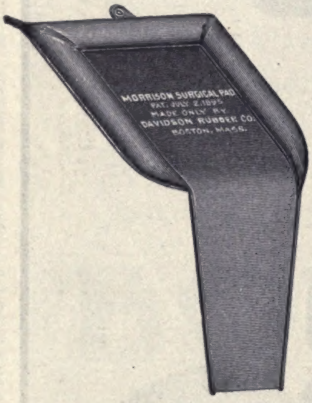

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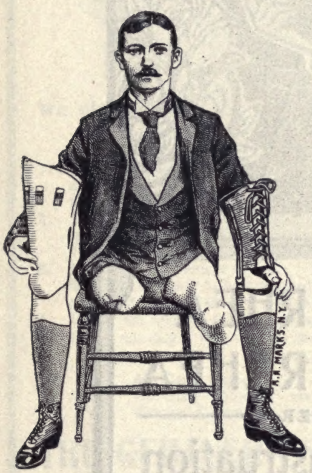

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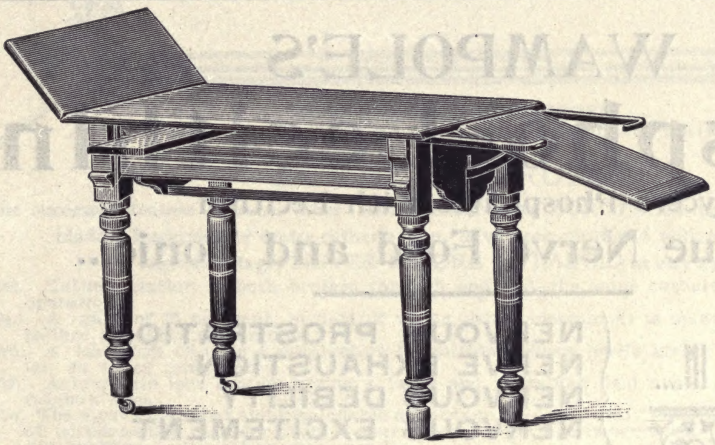

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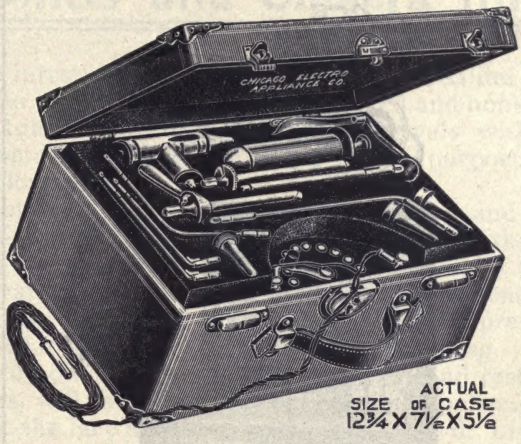

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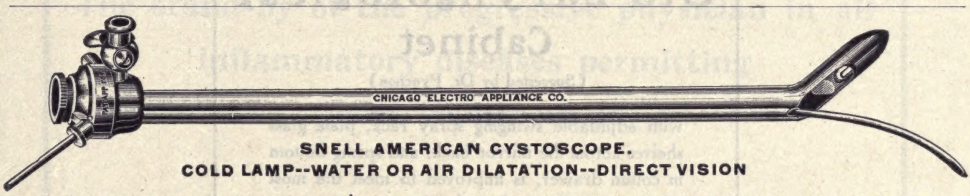

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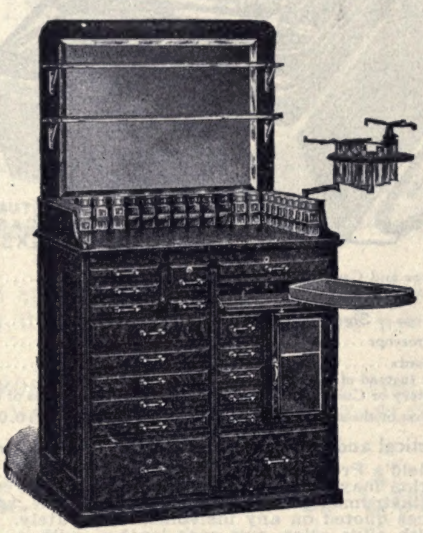

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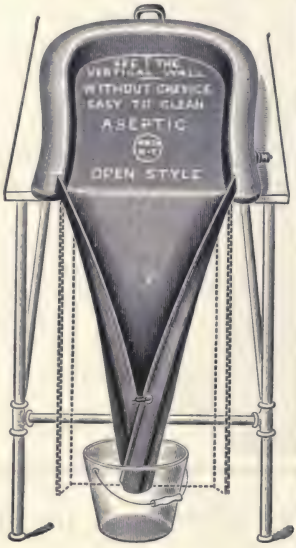

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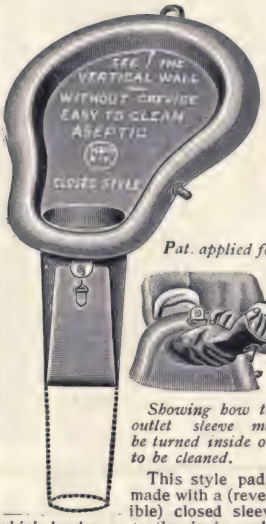

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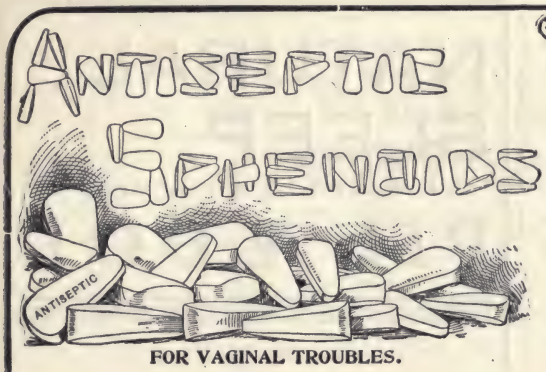

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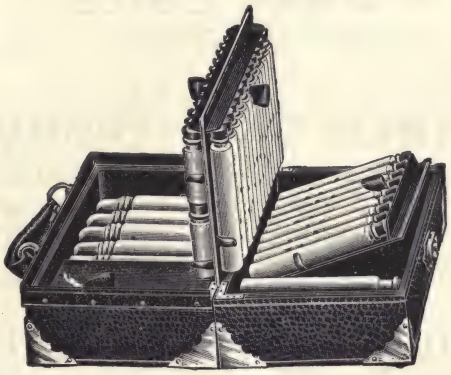

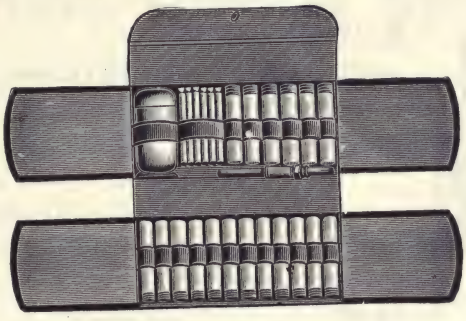

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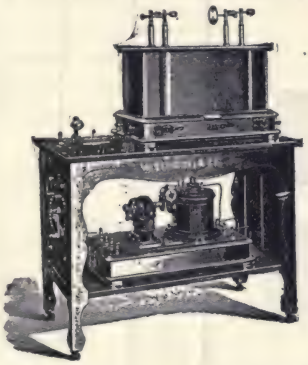

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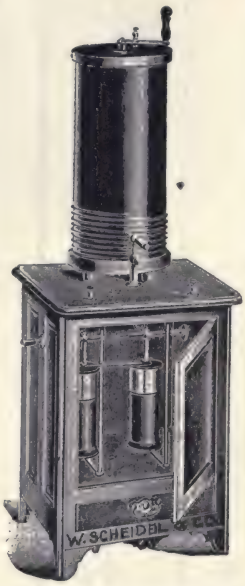

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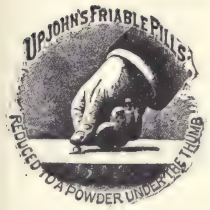

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DIABETIC GANGRENE.*

By STUART E. GALBRAITH, B. S., M. D.
Pontiac, Mich.

In selecting the subject of this paper, I was influenced by the fact that the physician is at times much perplexed as to the best course to pursue in a given case. The attention given this complication in text books is very slight and the literature on the subject limited. For these reasons rather than the possession of any special information concerning diabetic gangrene, I made my choice and now can only crave your indulgence.

The occurrence of gangrene in diabetic patients may be due to the same causes as senile gangrene, but owing to the greater susceptibility of diabetic tissue to infection is usually of the moist variety. For convenience, the etiological factors may be classed as primary, such as atheroma or neuritis, and secondary, or inflammatory conditions, the result of infection or severe bruising. Probably the most frequent cause is atheroma, the greater proportion of gangrene of the feet and legs being due to this pathological condition; there is often thrombosis of of the larger vessels, and Köenig states that marked atheromatous degeneration of the smaller arteries was present in nine out of eleven cases examined by him. Peripheral neuritis may occur independently or be associated with atheroma as a cause of this complication.

Inflammatory conditions arise from the paring of corns, cutting of toe-nails, the pressure of tight boots or bruising by direct blow, and this should lead us to caution our diabetic patients in regard to the importance of these facts.

Age would also seem to be an etiological factor, as the complication is rare under the forty-fifth year, but this does not seem surprising when we consider the frequency of atheroma as a cause.

When gangrene develops in a patient suffering from diabetes certain symptoms manifest themselves. He complains of severe pain in the affected parts, and if due to neuritis there may be some loss of muscular power; associated with the pain we have usually fever, loss of appetite, sleeplessness and a failure in the general condition of the patient. The amount of sugar may be increased or diminished showing only a small percentage. The suffering is intense and unless the condition is relieved sepsis may occur by absorbtion from the necrotic mass, or acid intoxication supervene and the patient pass into coma.

At the beginning of the complication the affected part should be placed at rest; if cellulitis is present, incision should be made to give satisfactory drainage, the necrosing tissue carefully removed, the wound cleansed and dressed with dry antiseptic dressing, then loosely wrapped in absorbent cotton.

The urine should be regularly tested

*Read before the Michigan State Medical Society, Grand Rapids, May 26, 1904.
Detroit, Mich., August 15, 1904.

for sugar, acetone and diacetic acid. If sugar is present in large quantities effort should be made to reduce the amount by the proper regulation of the diet; if acetone or diacetic acid is present, we must be on our guard, as these are generally accepted to be indications of impending coma and we should endeavor to combat the same by the administration of alkalies, as the sodium citrate or bicarbonate in large doses, together with subcutaneous or rectal injections of normal saline solution until the acetone or diacetic acid has disappeared from the urine. The simplest test for these substances is as follows: Gerhardt's reaction for detection of diacetic acid.

To the urine a few drops of the chloride of iron (B. P.) is added which generally causes a white precipitate of phosphates at first, which disappears on adding a little more of the perchloride solution, while the fluid becomes a dark brownish red or Burgundy wine color in the presence of diacetic acid.

Legal's test for acetone—To several cc. of urine in test tube a few drops of a concentrated freshly made solution of sodium nitroprussiate are added. The mixture is then made alkaline with liquor potassa. A red coloration is produced which soon disappears, but when a little acetic acid is added a deep violet red coloration is the result if acetone is present. If acetone is absent, the urine has its usual yellow color after adding the acetic acid.

The presence of casts in the urine is also believed by most observers to portend coma, and frequent search should be made for these.

As to just when expectant treatment should give way to radical measures is a difficult question to decide, as, like all other diseases flesh is heir to, the variability in different individuals must be reckoned with.

One case that came under my observation served to convince me of this: Mr. D—— aged 60, who has suffered from glycosuria for five or six years, called to see me in regard to his foot. Upon examination, I found a large discoloration over the metatarsal phalangeal joint of the great toe. There was an area of inflammation around the discoloration and the tissues seemed to be filled with fluid. He was sent home, told to keep off his feet and the next day an incision was made for the purpose of drainage—quite a large amount of dark brown offensive fluid escaped from the incision. The skin over the discolored area sloughed off and left an open sore about as large as a quarter of a dollar. This continued to increase in size and was very painful. The wound was dressed daily, but the improvement, if any, was so slow that my patient began to chafe under his inactivity and one evening got up, put on an old slipper and went out and returned near mid-night in an intoxicated condition after a sociable evening with his boon companions.

I discharged myself, telling my patient that there was no need in my endeavoring to do anything for him if he would not take care of himself; a few days afterward he presented himself at my office and in response to my inquiry, if he had decided to behave himself, said he came to show me his foot which much to my surprise I found to be entirely healed, having received no attention since my withdrawal. I have heard that he has recently had more trouble of a similar nature and is now taking treatment in Detroit of a regular physician, an osteopath, and Christian scientist, each of whom is ignorant of the treatment of the other two.

The literature which I have had at my command has been very meagre in its instructions regarding operation. Kőenig (*Berliner Klin. Wochenscrift*) says that

amputation should be performed under the following circumstances:

1st. When in spite of energetic antiseptic treatment cellulitis and fever continue.

2nd. When glycosuria persists in spite of anti-diabetic treatment and coma is threatening.

Godlee states that amputation is not indicated in gangrene when due to neuritis, while at the same time he says that if amputation is done for gangrene of the foot due to this cause it should be below the knee. The same authority points out that when due to atheroma amputation should be performed and as this condition usually extends high up the leg, the site of operation should be above the knee.

Lilienthal in *New York Medical Record* gives what appeals to me as the most judicious treatment of the subject. He divides his cases for consideration into three groups, as follows:

Group 1. General condition good. No acid intoxication, sugar much or little. One or more toes or fingers affected with or without phlegmon, but not threatening use of member.

Treatment should here be conservative. The affected fingers or toes should be removed and phlegmon drained by the freest incisions. The wound should be packed and wet dresings applied, tendon and fascia being allowed to slough away.

Group II. General condition good. No acetone or diacetic acid in the urine. Local condition such as to threaten the usefulness of the affected members. In this case amputation of the limb high above the upper level of the disease is advised; when the disease is in the foot it is best to amputate well above the knee. If in the upper extremity, the amputation need not, however, be above the elbow. All flaps should be made of skin and muscle instead of skin alone.

Group III. General condition of patient poor or comparitively good with much or little sugar acid poisoning present. Disease threatening or not threatening the affected part. Treatment in this group must be palliative until acid intoxication with its impending coma shall have disappeared. If we are unable to accomplish this the poor prognosis should prohibit us from radical operation, although free incision for drainage of phlegmonous tissue must be practiced in any event.

To state briefly: If the disease does not threaten the use of the affected member and patient's condition is good, remove the parts involved.

If disease threatens the use of the affected member and general condition is good, do an amputation high above the upper level of the disease.

If patient's condition is not good, treatment must be palliative until the patient's general condition is improved, then amputation performed. If the condition cannot be improved, then operation is contra-indicated.

We are all aware that the treatment of these cases by radical means has taken a considerable advance since the introduction of antiseptic surgery, but in order to obtain the best results a careful consideration should be given to each case, the chemical and microscopical examination of the urine, the examination of the blood together with the clinical manifestations enabling us to form our judgment as to the best procedure.

No rule can be laid down that will apply to all cases and each is a problem in itself. In general it may be said that operations under local anæsthesia, as cocain or freezing mixtures, should be avoided, as the tissues are nearly sure to necrose. The selection of the anæsthetic should be carefully made, anæsthesia at the best being poorly tolerated by patients suffering from diabetes.

The prognosis of operations on diabetics may be said to be poor, but it is my belief that if our patients are brought to the table prepared, the urine containing the minimum of sugar, and free from acetone and diacetic acid, then operated on expeditiously, to shorten as much as possible the period of anæsthesia, and care be taken to secure flaps with abundant blood supply, the sequelae in the forms of shock, coma and recurrence will be materially lessened, and the results be made more satisfactory both to the patient and the surgeons.

Pontiac, Mich.

DISCUSSION.

Dr. F. W. Robbins, Detroit.

Mr. Chairman, It seems to me this has been a very interesting paper on an extremely interesting subject, particularly interesting from the fact that wherever we have a gangrenous condition in connection with diabetes, the surgeon's mind is usually averse to anything like an operative procedure, noting particularly this one fact the Doctor has brought out, that all operations on diabetics are very much more liable to septic infection than similar operations on any other class of people; and yet in some little experience that I have had in this line, it has seemed to me that operations ere absolutely required from time to time. In two cases that I have in mind, the gangrene in both appeared on the great toe, and in each the pain that accompanied this gangrene was so extreme that the patients absolutely demanded that operative procedure be employed. In both of these cases the gangrene was of the dry variety and not the moist, and in both cases arterio-sclerosis was very pronounced. One case, that of an old man about seventy years old, as I remember, had injured his foot and following the injury there began a diabetic spot, which gradually increased, became septic, burrowed down and injured some of the bones of the foot, and although with that old man I was very much averse to operation, I still decided that it must be done, and removed the leg below the knee. Healing occurred promptly by first intention; the patient's suffering immediately disappeared, and he got well of this, but afterards fell and injured his other foot and soon died. The question about the difference between diabetic and senile gangrene seems to me to be very slight judging from my two cases, in which arterio-sclerosis was marked. The question where to operate is always uppermost in mind, and in a recent article—or not a particularly recent article, I have forgotten by whom, in New York, it was quite nicely shown that senile gangrene can be treated by operation, amputation at the knee joint, with as good opportunity and good chances for healing by first intention as operating above the knee. If that is true that would certainly be a better operation than above the knee, it seems to me. It is difficult to tell whether the sclerotic condition of the arteries is due to the diabetes or whether due to alcohol or syphilis, because the three conditions are very liable to exist in the same person. The last case that I have in mind is one that I have under treatment at present. Here the patient is only 47 years old, which is about the minimum age as noted by the essayist's paper, and his arteries were very hard, so much so that on amputation the arteries could be pulled out and snapped off with the finger, and the current of blood as it emerged from the heart, sounded as if the blood was thrown into a tin tube, as it were, almost a musical sound. Whether his arterio-sclerosis at that time of life was due to diabetes, which I know to have existed seven years, or whether due to syphilis, or alcohol, as he is a chronic alcoholic, I cannot say.

This whole paper was a very interesting one to me and I hope to hear very much more discussion.

Dr. A. W. Hornbogen, of Marquette.

Mr. Chairman, I think that possibly there has been a little too much stress laid upon the fact that a patient suffering with diabetes developed gangrene from a slight blow, stub of a toe or paring a corn. I think in these cases where you have history of that kind, that it is merely coincident with the gangrene, that your gangrene happens to start about that time, and the patient will tell you that he stubbed his toe or something of that kind, but I don't think that the injury produces the gangrene.

Another point that I wanted to ask about was in regard to the pain in these cases. My experience has been that cases of diabetic gangrene were practically absolutely painless, and I have never seen a case where the patient complained of very much pain.

A third question I would like to ask in regard to that case mentioned, where his treatment was unsuccessful, and the patient successfully treated himelf by getting drunk, would it perhaps be a good thing to advise patients to drink whiskey to find out whether we have any similar results in cases of diabetic gangrene?

Dr. Thos. McGraw, Detroit.

I think that it would be a great error to think that diabetic gangrene always was associated with arterio-sclerosis; the fact is there have been a great many cases of diabetic gangrene observed by different observers, where the most careful examination showed no disease of the arteries whatever, and yet gangrene came on from the peculiarity of the disease. It could be ascribed to nothing else but the diabetes. Arterio-sclerosis is a very common association with diabetes; it is not by any means in those cases that we get diabetic gangrene, it comes with cases where there is no arterio-sclerosis at all.

Dr. F. B. Tibbals, Detroit.

Mr. Chairman, I am glad to have heard this paper, because it places upon a scientific basis the treatment of these cases of diabetic gangrene, as I personally did not have it in my mind before. The division of the types of cases into three, one of which certainly should be left alone, the other two subjected to operation, one more radical than the other, I think is exceedingly good, and all of it is based as we have heard upon a scientific and careful examination of the urine. I myself have never amputated for diabetic gangrene, but I have seen one or two cases, where afterwards I wished that I had, because they were cases accompanied by so much pain.

Dr. Hornbogen has said that he has not seen cases attended by pain; the cases that I have seen, only few in number, have been attended by a great deal of pain, and after watching those people suffer for months, I wished that I had amputated in the hope that I might at least have relieved the pain.

Dr. A. J. Ochsner, of Chicago.

Mr. Chairman: The only thing that I would wish to add to the discussion is this: That in cases of diabetic gangrene if operated while there is an abundance of sugar present, the patient is liable to diabetic coma directly after the operation, and death, while the patient, if relieved of the great amount of sugar, by the administration of large quantities of distilled water, will recover from the operation, the same as any other patient would. The test is of course exceedingly simple, and in a large proportion of these cases by simply giving them a moderate and diabetic diet, a diet which gives the patient a sufficient amount of carbohydrates to keep up his strength, but as little as possible, and at the same time gives the patient a very large amount of distilled water, at first as much as a gallon a day, and then reduce it down to a quart a day, that treatment will have that effect and will make the operation very much safer.

Dr. Galbraith, in closing:
I have very little further to say. In regard to the operation being performed at the knee joint, as Dr. Robbins suggested, somewhere in my reading I found a statement that this was rather a bad procedure, simply owing to the fact that the flaps would consist so largely of the tendon and fascia, it would have much more tendency to slough, than if taken from above where the blood supply was more abundant.

Like Dr. Tibbals I have never seen any cases of diabetic gangrene but those which have been accompanied with severe pain. I think where the gangrene is due to or accompanied by neuritis, pain is much more intense. All the cases that I have ever seen have always suffered a great deal from the pain. It has been one of the hardest things to combat.

DISEASES OF THE RECTUM AND ANUS. MODERN METHODS OF TREATMENT AND DIAGNOSIS.*

By LOUIS J. HIRSCHMAN, M. D.,
Detroit, Mich.

Inasmuch as a considerable percentage of all of the cases which the average practitioner of medicine is called upon to treat, is dependent upon some defect in elimination, it has been thought advisable to include in this course of lectures, one upon the largest and most important avenues of elimination, the rectum. With the possible exception of the kidney, the rectum, the lower end of the alimentary canal, is the most important excretory organ. I venture to say that 90 per cent. of all the rectal and anal troubles are treated in general practice without going to the trouble of making a rectal examination, and if such examination is made, it usually consists of a mere ocular inspection of the outer parts and the insertion of the index finger of the right hand; —that is all!

I intend to demonstrate the fact this afternoon, that it is possible to make a thorough examination of the rectum and anus, without the necessity of soiling one's hands in the least; and to prove that it is just as clean a procedure as a local examination of the chest. If, after the demonstration, I have satisfied you that such can be done, I will feel that the hour has been well spent.

A great many reflexes, the real seat of origin of which is really in the rectum, are treated empirically and symptomatically; when a thorough proctological examination would reveal the cause of the whole difficulty, and suggest a remedy. In symptoms which refer to the digestive organs, much time has been spent on stomach analysis and hunting for the cause in the genital and pelvic organs, and the rectum—the most fruitful source of all—has been overlooked, intentionally or unintentionally. To pretend to make a correct diagnosis of rectal disease without a thorough examination of the parts, is as absurd and unscientific as to attempt to make a diagnosis of valvular heart disease without a physical examination. It is very essential in all cases which present themselves, in which the recital of the symptoms would lead one to suspect any interference with rectal elimination (whether the symptoms are direct or reflex), to make a thorough rectal examination at once. Very often beginning malignant disease can be discovered early enough to successfully combat and cure. Small ulcers, hemorrhoids, beginning fistulæ, polypi and other conditions may also be discovered early enough to be successfully treated by any general practitioner. Here, more than in any other portion of the body, diseases are more liable to progress rapidly and when a tardy examination is made, the patient's condition may be hopeless. In a great many reflexes, in which the seat of the pathological process is not apparent, it is surprising in how many cases a rectal ex-

*Lecture delivered before the Alumni Clinic of the Detroit College of Medicine, April 29, 1904.

amination will serve to clear up the obscurity of the case. Many cases of urinary distress, incontinence, impotence, tenesmus, sciatica, intestinal flatulence, headache, loss of appetite, back-ache and various skin affections may be found due to some pathological condition, the seat of which is found within the limits of the rectum.

It is my purpose to outline a satisfactory scheme for the examination of the rectum by the physician. In the first place, it is almost needless to say that the history of the trouble should be inquired into, in detail; and let me say here, that the method of questioning the patient is of vital importance to the patient's confidence in his physician. It is always my rule to allow the patient to tell his story in his own words. If he is a stranger, it puts him more at his ease. After he has done so, then questioning by the physician in regard to his habits, occupation, environments, family history, etc., should follow.

Symptoms which he has mentioned in the course of his recital and which would justify your request for a rectal examination, may be enumerated as follows:—

First—Indigestion, loss of appetite, flatulence, constipation, and any irregularity of the action of the bowels.

Second — Intestinal aching; pains throughout the sacral or pelvic regions, or shooting pains down the legs, sense of constriction of weight in the body and pelvis (particularly in males.)

Third—Spasmodic or constant dysuria and other genito-urinary disturbances.

Fourth—Undue looseness of the bowels and the changed appearance of the fecal excretion; such as the presence of mucus, pus and blood. In women, in my opinion, no gynæcological examination is complete without a rectal examination included.

Fifth—In children, restlessness at night, picking the nose, precocious appetite, scratching or fingering the rectum or anus or genital organs, should call for a rectal examination.

Of course, a great many of the above named symptoms may arise from other conditions, but a surprisingly large number of them will disappear upon treatment of conditions discovered on rectal examination. Reflex symptoms, like those above mentioned, are often more important to the regular practitioner than to the rectal specialist, because people who consult a rectal specialist do so because they have symptoms which lead them to suspect rectal trouble. Those who consult a general practitioner come for a diagnosis. When rectal trouble is suspected, the condition of the bowels should be inquired into; the shape of the stool, its color, odor, consistency, frequency or infrequency of passage; whether attended by pain, tenesmus, straining; and whether containing blood, mucus, particles of undigested food, etc., etc.

If pain is complained of, the point of pain, the kind of pain, and the duration and nature of the pain are all important to make the proper diagnosis. Itching, burning, and spasm of the sphincters are important points to bring out. The patient should also be asked if the rectum protrudes at stool and if so, after much straining or upon slight exertion; and whether it disappears spontaneously or whether it must be replaced by him. If so, whether easily or with difficulty. It is also important to know whether the protruding part is hard, soft or nodular; whether it bleeds or not and whether or not it is painful to the touch. The habits of the patient, his occupation and personal history must be gone into. Whether he is a habitual user of cathartics or enemas, whether he has a venereal or tubercular history; whether the desire to go to stool is satisfied at the time, or whether there is a feeling as though some-

thing remained in the rectum, even after all efforts to defecate are exhausted; whether he has a regular time for going to stool daily, and whether he is in the habit of sitting long at stool or not.

After eliciting as complete a history as can be procured, the patient may be prepared for a local examination. An ordinary examination chair or table is sufficient. Either reflected daylight or electric head-light is best for rectal work. The electric head-light has given me the most satisfaction. Vaseline or glycerine may be used as lubricants for fingers or instruments. I use an emollient jelly. For the examination of the perineum and external parts or digital examination of the rectum, the left lateral or Sim's position or the lithotomy position will suffice, but in order to make a complete ocular inspection of the interior of the rectum and sigmoid, it is essential to place the patient in the knee-shoulder position and to inflate the rectum. The accompanying charts will illustrate the correct position for inflating the rectum by atmospheric pressure and making the most satisfactory examination. A number of chairs and tables have been devised for holding the patient in this position but they are not essential to the successful examination of the rectum in this position.

The technique of a proper ocular inspection of the rectum is as follows:

The patient having been placed in the knee-shoulder position, and the inspection of the external parts and the digital examination having been made (and in the case of female, the bimanual examination as well) the tubular proctoscope with the obturator, fitted with a conical extremity, in place, is gently but firmly pressed against the anus, slightly downward towards the umbilicus and the patient is asked to bear down. The sphincter will grasp the speculum, it enters easily and painlessly into the rectal cavity. I might say that if the entrance of the proctoscope occasions pain, the injection into the sphincter of a few drops of a 1 per cent. solution of cocain or eucain will render proctoscopy painless. When the obturator has been withdrawn, the atmospheric presure will cause the rectum to balloon and the air rushes in audibly. If the rectum seems to terminate at the end of the speculum, this apparent obstruction, by manipulation of the instrument from one side to the other, is found to be due to the impingement of the instrument against one of the valves of the rectum. Beyond this valve, the cavity terminates by another valve and a third cavity will be seen beyond this. These three cavities terminate in the opening of the sigmoid flexure. The rectal valves, which are usually three in number, can best be described by reference to the accompanying charts. The beauty of simplicity, and facility of manipulation in inspection, which this method of examination affords can only be appreciated by its demonstration on the patient.

Ulceration, excoriation, polypi, tumors, inflamed areas, in fact, any pathological condition of the rectal surfaces are more clearly seen while the rectum is in a state of inflation. It might be truly stated, that the era of satisfactory and complete rectal examination commenced with the assistance of inflation and proctoscopy. The knee-shoulder position is most satisfactory for the application of cauterizing agents, ointments, sprays, etc., etc., as the manipulations are under the absolute guidance of the eye.

Conditions will be found by the general practitioner upon examination of the rectum and anus, which he does not feel qualified to treat, and which must necessarily be referred to those who have given the study of rectal disease and their treatment considerable time, and who are

equipped to properly treat such cases, as they require more extended and radical treatment than can be given by the busy practitioner; but a great many proctological conditions can be successfully treated and relieved in the general routine of office practice.

a Whitehead operation or one of its modifications, may under local anæthesia be ligated and snipped off with the scissors and the stump cauterized with glacial acetic acid or sutured with a removable continuous silk worm suture. I, personally, do not favor actual cautery

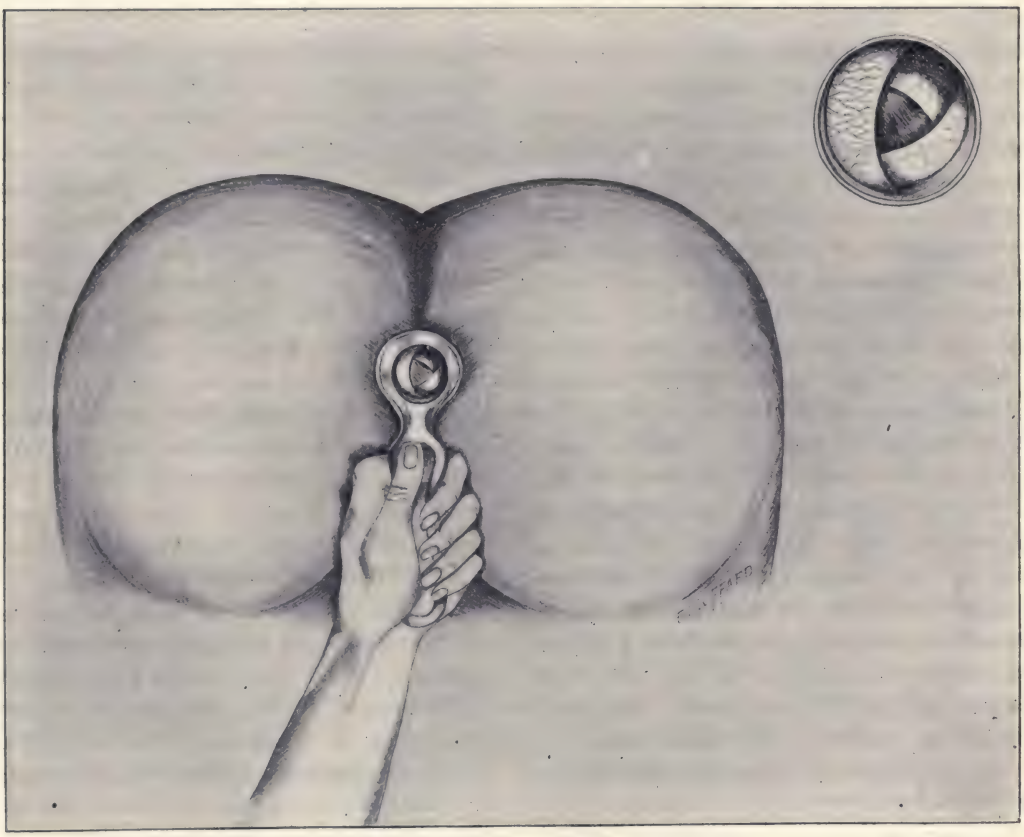

Chart 1. Proctoscopic view of rectum showing the three rectal valves in position, as seen with the patient in the "knee-shoulder" position, and the rectum fully inflated. Enlarged view of valves in the upper right hand corner.

The technique of making a rectal examination being now understood by every one, I will now mention a few of those more common conditions which come into the hands of every general practitioner, and give a few hints on the treatment of these conditions. External hemorrhoids unless severe enough to call for

in this condition. Internal hemorrhoids may be incised under local anæthesia but where it is possible to get the patient's consent to general anæsthesia, it is much better. Considerable dilation of the sphincter may be secured under local anæsthesia, (the injection of a few drops of cocain or eucain solution) and the

hemorrhoid incised with a sharp scalpel in a longitudinal direction; then a small curved scissors (curved on the flat) or angular scissors, such as I have devised for rectal work, is inserted into the longitudinal slit and is turned from side to side while cutting, until the hemorrhoidal mass is completely macerated; the clots turned out and a spindle-shaped gauze

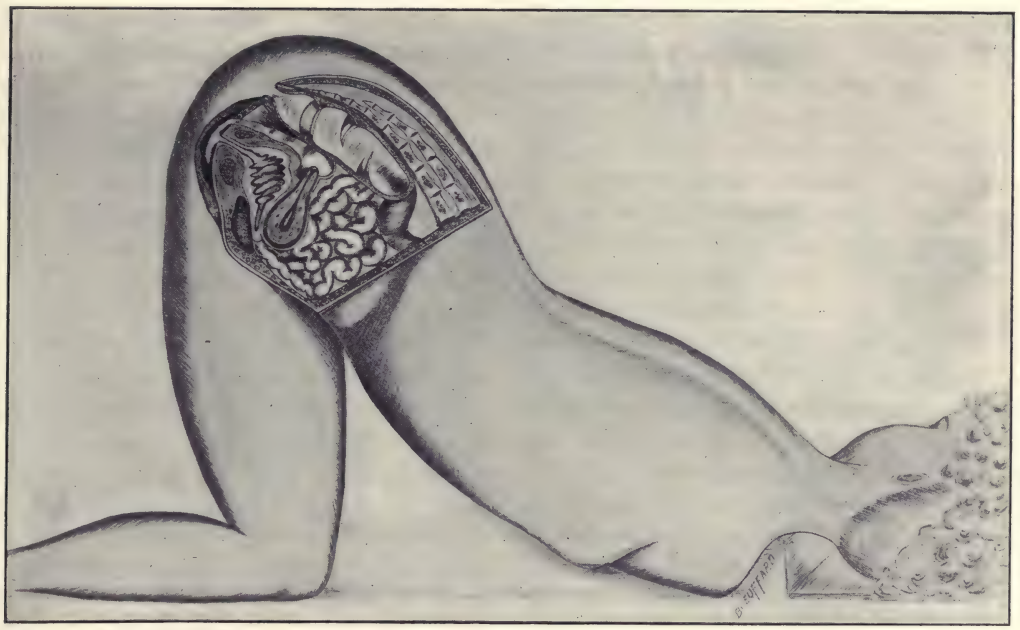

Chart 2. Patient in the proper position for proctoscopic examination, with section through pelvis showing, rectum inflated, with valves in situ.

plug is inserted, through which is passed a rubber tube for the escape of gas. This plug is removed in from 20 minutes to an hour afterwards. The sphincter, having been dilated, contracts upon this plug and by its own pressure absolutely controls all hæmorrhage and it is the exception, rather than the rule for me to use any ligatures whatever in removing internal hemorrhoids. The longitudinal incision does not cause stricture as it leaves practically all of the mucous membrane in its integrity and sutures are not necessary.

Fissure and irritable ulcers are very annoying conditions which may be treated usually in general office practice. Inasmuch as an irritable ulcer is usually the result of a fissure, they will be considered together. The ulcer, however, is found higher up than the fissure. It is generally found between the two folds of mucous membranes, extending upward from the muco-cutaneous juncture. If it is recent, it is a red color, otherwise, the base is yellow or gray, and the tissues around it are indurated and thickened. Examination will discover one or two particularly painful areas, where the nerve endings have been laid bare. These are found in the posterior portion of the anus. Very often a small polypus will be found hanging from the mucous membrane above and press on the ulcer. These are usually caused by traumatism from the discharge of hardened feces. The pain and discomfort caused by ulcer and fissure is out of all proportion to the size of the lesion. It radiates all through the anus, going up and down the spine, causing spasms of

the sphincter and tenesmus which is almost uncontrollable at times. The pain caused by defecation is so intense as to cause the patient to delay the act as long as possible, thereby inducing more constipation and inevitable more discomfort upon the next movement. In men, reflex bladder irritability often accompanies this condition.

The first thing in treating these conditions is to cause soft and non-irritating stools and local application of anæsthetic ointments, containing cocain, eucain, orthoform or chloretone. After each defecation an ointment containing ichthyol, zinc oxide and lanoline will be of service. In some cases, it will be necessary under local anæsthesia to divide the muscular fibers. This will be found to cure a large number of cases. Dilation of the sphincter, in some cases, may be all that it necessary. Patients having irritable ulcer and fissure are usually so emotional that a general anæsthetic will not infrequently be required.

Abcesses in the region of the rectum usually form either in the mucous membrane of the anal margin or in a hair follicle in the cutaneous portion, or may be formed in the ischio-rectal space. Simple incision is usually all that is necessary to cure the first two but the ischio-rectal abscess is sometimes a more formidable condition and one which requires treatment under a general anæsthetic. Early and wide incision, throughout curettment and flushing will be necessary. The relief given a patient suffering from this condition has to be seen to be appreciated. Fistulae which usually results from the lack of treatment of the above named abscesses, are best treated under general anæsthesia either by incision or by removal of the entire fistular tract and draining. Polypi are most often found in children. They cause tenesmus, frequent, difficult, stools and are easily removed by means of a snare or ligature under local anæsthesia. A number of other conditions which are amenable to local treatment might be mentioned, such as various inflammations of the rectum, simple and chronic proctitis, prolapse and stricture, as well as tuberculosis and syphilis, but time will not permit of their discussion at this juncture.

One of the most important conditions which has been brought to our notice by means of this newer method of rectal exploration, is that disease which is now known as obstipation. Obstipation, to my mind, is best defined as difficult defecation, due to mechanical obstruction of the fecal passage. This obstruction may be an integral part of the rectal wall or may be due to an impigement of some organ on the rectal wall. Obstipation, will thus be seen, in contradistinction to constipation, to be purely a mechanical condition. Constipation, however, is difficult rectal elimination caused usually by faulty diet, or atony of the muscular coats of the bowel, thereby weakening its propelling power. Obstipation, by its checking the proper excretion of waste products, will be found to be at the foundation of a great many diseases. Most cases of obstipation, it has been found by modern proctoscopy, are due to enlargement or fibrous thickening of one or more of the rectal valves, and this condition has been entirely relieved by valvotomy.

It might not come amiss to describe the symptoms of the average case of obstipation:

The patient will first complain of an inability to defecate properly or comfortably. He will tell you that he has a desire to go to stool more or less regularly, but in spite of his straining efforts he can void nothing at all or perhaps a few hard, apparently broken-off pieces, usually dark in color, or long ribbon-shaped or flat

stools, sometimes accompanied by mucus. He will inform you that this condition has existed for a considerable time; that cathartics do not seem to have the proper effect; that he is troubled constantly with abdominal distention; that even after ordinary defecation there is a sensation of fullness remaining in the rectum. The rectum and anus may feel hot and burning, packed and stuffed. This feeling is with the patient constantly. He tells you that he goes from two days to a week or more without stool unless produced by catharsis.

There may be tenderness in the lower abdominal region and a large fecal mass may be felt in the region of the sigmoid. The ribbon-shaped, broken-off stool I consider almost pathognomonic of this condition. Several patients have come to me with a diagnosis of rectal stricture made by passing rectal bougies, and on account of the presence of ribbon-shaped stools, when proctoscopy showed them to be caused by obstipation due to hard fibrous, rectal valves, section of which gave complete relief. The straining, with the inability to void the stool, is explained by the fact that the enlarged rectal valves, overlapping, impinge one upon the other during the bearing-down movement, absolutely obstructing the passage of solid feces. If the two thickened rectal valves do not completely appose, a narrow, eliptical chink may be left, through which the flat-ribbon-shaped stool is moulded. The intermittency of the propulsive effort is responsible for the short broken-off stools. The other symptoms of intestinal auto-intoxication are usually present in these cases.

If there is not a great deposit of fibrous tissue in the valves, simple massage by means of the proper instrument may effect a cure. Usually, however, operative procedures are needed to give complete relief. Obstipation due to the impingement of a retroverted uterus or a prolapsed or cystic ovary will be relieved by the proper attention to those organs. If I have succeeded in bringing before your minds the importance of rectal examination and have shown you the simplicity of such examination, and moreover, upon such examination, conditions are found which were otherwise unsuspected, I feel that these few words have fulfilled their mission.

420 Woodward Ave.

THERAPEUTICS OF THE X-RAY.*

By HENRY H. COOK, M. D.,
Detroit, Mich.

Radiographer and Radio-Therapeutist, St. Mary's Hospital.

Fellow Practitioners: I have been asked to talk to you today on the X-ray and its therapeutics. The use of the X-ray as a therapeutic agent is of recent discovery, nevertheless it now takes front rank as an efficient remedy for many of the diseases which have heretofore been considered hopeless. The advancement along this as well as other lines in the science of medicine has been truly marvelous and yet they say we have just started. This is surely so as regards the use of electricity both for diagnostic and therapeutic work.

Believing that it would be of great interest to you as practitioners to speak of some of the various points that arise when considering the therapeutic appli-

*Read before Alumni Association of the Detroit College of Medicine, May 6, 1904

cation of the X-ray I have decided to make this the subject of my talk and if time permit show a patient or two to illustrate the point in question.

It was at first supposed that the X-ray would serve its principal use as an aid to diagnosis; but this feature has been equaled if not exceeded by its therapeutic application. There are many points of difference of opinion among the workers in the X-ray field as to the proper technique to follow for the best results. There is a diversity of opinion as to which is the best type of generating apparatus, some favoring the static machine and others the coil. Naturally the person who has used only the static machine believes it to be the better, while the operator who has employed the coil to the exclusion of the static machine usually favors the coil.

It has been claimed that with the static machine there is no possibility of producing a burn, while with the coil there is great liability of burning, but the fact is that either will burn if sufficient exposure is made. I speak from the standpoint of one who has used both the static machine and coil. Personally, I believe that good results can be obtained with either type, but with a preference for the coil because it is capable of better regulation, and probably one of the greatest points in its favor that it is not affected by changes in the atmosphere. It is exactly the other way with the static machine and in the warm and damp weather it is a difficult problem to keep it in running order. The static machine has one point in its favor in that it can be used both for X-ray work and the generation of the various static currents.

In the smaller towns, where there is no public lighting plant or other source for supplying the initial current, unless the storage battery is used, one must necessarily fall back upon the static machine because it may be turned by hand and will furnish sufficient current for light work, or if sufficient water pressure is available a water-motor may be used or even the gasoline motor may be employed, providing the physician is mechanical enough to keep it in running order. In fact it is the mechanical man who will best cope with the various electrical devices and instruments, because there is no class of instruments that give so much trouble and are apt to get out of order so easily, and if one is able to ferret out the difficulty and correct it he will get along much better than if he were at the mercy of the so-called electrical expert who probably is as ignorant as he himself and yet pretends to know all about it.

I had an experience with one of these expert electricians a while ago which illustrates the point I wish to make. A physician in this city purchased a coil outfit from an agent and when it was delivered it was necessary to get an electrician to install it. He succeeded in getting the coil to work perfectly for a time; then he blew the fuse and called in the electrician to put in a new fuse and after repeated efforts and repeated blowing of the fuse he decided that either there was a short circuit between the primary and secondary windings of the coil, or the interrupter, which was of the electrolytic type, was at fault. A new interrupter was ordered and still the trouble continued and after working about a day the electrician decided that there was a break-down in the coil. At this point the physician asked me to look at the coil and see if I could determine the true condition. I examined the various wires and connections and found them perfect, but instead of 1-16 to 1-8 of an inch of platinum being exposed in the interruption there was over 1-2 inch and that was the cause of all the difficulty. This simply shows one of the minor points that might arise and by testing

the different parts one might be able to locate the trouble and thus save the wait for the expert.

As regards the size of static machine best suited for X-ray work, the largest are none too large, that is from 16 to 24 plates; the larger the better, because the small ones are absolutely useless for this work.

Considerable difficulty is at times experienced in keeping a static machine in working order, particularly during the summer months, owing to the high percentage of moisture in the air, and it is often necessary to resort to some plan of drying out the case containing the plates. While there are many plans offered, I have had the best results with the fused calcium chloride. This preparation is not liable to cause the difficulties that some have experienced when the unfused calcium chloride or ordinary unslaked lime has been used because the rapid revolution of the plates is liable to draw up the fine particles which we find in these preparations and this fine dust lodging on the plates soon collect moisture and then the machine refuses to generate any current and the plates must be removed, cleaned and re-shelacced before sufficient current will be generated for good work. The metallic parts on the outside of the machine should be constantly free from dirt and dust otherwise there will be great leakage of the current.

As I have stated before, I think that good results are obtained in the treatment of diseased conditions by both the static machine and coil, but for radiographic work the coil far excels the static machine, both as regards results and length of exposure. With the static machine it is almost impossible to make skiagraphs of the body and yet with the coil this can be accomplished readily, in fact the exposure is much shorter for all classes of work when the coil is employed.

If a physician intends using a coil, while the 8-inch coil will probably answer the purpose for therapeutic work, yet when he is buying an apparatus of this kind he usually feels that he wants it for radiographic work as well and then the larger coils, say from 12 inches up are to be preferred.

The X-ray coils are made of a primary winding of coarse wire and a secondary winding of very fine wire with an insulation between the two windings. The primary is composed of three or four turns of heavy wire wound upon a soft iron core. At the present time these layers of wire are wound both in parallel and series and on some coils are tapped so that one, two, three or four layers may be employed. The series winding is preferred for all direct current work, while the parallel is used with the alternating current.

Up to a short time ago, the use of the alternating current was not satisfactory, but within the last year a number of devices have been placed upon the market which practically change the alternating to a direct current. One of the great troubles experienced when the alternating current is used is the destruction of tubes, but by the use of the rectifier this has been overcome.

The ordinary X-ray coil is made something after the plan of the faradic coil, only on a much larger scale, and is really what is called a step-up transformer in that the initial current is a direct low voltage current, and the resultant induced current is an alternating high voltage current. When we consider the fact that coils are made which will throw a spark a distance of 30 or 40 inches it is evident there must be an excessive voltage or force.

The action we have taking place in a coil is first the magnetization of the soft iron core, upon which the primary is

wound, by the passage of the primary current. The moment the circuit is broken the iron core is demagnetized and this induces a current in the secondary winding. The oftener we make and break the circuit in the primary, the oftener we have a current traversing the secondary and to accomplish this various interrupters have been devised to interrupt rapidily the current passing through the primary winding. The vibrating interrupter which is constructed on the same principal as the vibrator of the ordinary faradic outfit, is one of the simpler types of interrupters. The break in the current is caused by magnetic force. The primary current passing through a coil of wire within which is a soft iron core, magnetizes the core and this attracts the armature which is attached to a spring vibrator and thus separates the two points of contract which at first closed the circuit. As soon as the circuit is broken the soft iron core becomes demagnetized and the vibrator swings back by the force of the spring to complete again the circuit. This interrupter permits of a wide range of adjustment both as regards the number and rapidity of the interruptions and for small coils and portable outfits may be readily used. One great difficulty with this type of interrupter is the trouble experienced in keeping the two contact points in good condition so that the interrupter will work at its best, because there is considerable arcing at the break in the circuit which soon destroys the platinum; or, the two points may fuse together and this is liable to cause trouble.

The mercury dip is another form which is not extensively used, it being dependent upon the thrusting of a rod into a pot of mercury and rapidly withdrawing it. This makes and breaks the circuit and by working the dip with a motor and regulating the speed of the motor it permits of a wide range in the number of interruptions.

The two types of interrupter which are most employed are the electrolytic and mercury jet.

The electrolytic interrupter is made in many modified forms, and although the principle was understood before yet it remained for Prof. Wehnelt to present it in this form and for this purpose. He employed one large lead electrode and another of platinum wire sealed in the end of a glass tube and these were immersed in a solution of dilute sulphuric acid. When the platinum electrode is made the negative pole and the current turned on we have gas given off which temporiarly insulates the platinum and thus the circuit is broken, but as soon as the gas rises the platinum is again exposed and the circuit again closes. The rapidity of interruption is regulated by varying the amount of platinum which is exposed. This type of interrupter permits the passage of a great quantity of current and in fact takes more current than any other interrupter. It has the disadvantage of soon heating the anode and unless great caution is exercised will destroy the tube. One other point is the stopping of interruptions which takes place after the solution becomes heated from the passage of the current. Various plans have been tried to obviate this over-heating and the most effective one has been placing a coil of lead pipe in the jar and passing a stream of cold water through it, which keeps the solution cool. Another plan is to have a large jar, so that it takes some time for the solution to become heated. The Wehnelt or modified Wehnelt interrupter is the one which is generally used today, but where one is making many exposures a day, there is no interrupter which will give as good results as the mercury jet. It may be run continuously

during the day if necessary without causing any trouble and the only attention it needs is the occasional changing of the mercury. In this interrupter the mercury is wormed up by centrifugal force and thrown against segments on the side of the pot or container, which are alternately insulated and non-insulated, hence the interruptions in the current.

The revolving centre shaft is operated by a motor and the speed of the motor, which may be governed by a rheostat, determines the number of interruptions. Ordinarily, the interruptions are so rapid that the tube glows as steadily as with the static machine, and this is a strong point in its favor for fluoroscopic work.

The mercury turbine interrupter requires less current than the electrolytic, there is not the same tendency to heat the anode and thus it is not so hard on the tubes. For coil work only the tubes with extra heavy anode are to be recommended, while with the static machine, those with the light anode are admissible. There are many makes of tubes on the market at the present time, but probably the more expensive ones, while costing more in the beginning, are the best and cheapest in the long run. It is with this as with many other things, if you wish a good article you must pay for it.

There are two points which are essential in the construction of a good tube, namely: proper focus and capability of regulation of the vacuum. By proper focus I mean one in which the cathode stream is focused at a fine point on the anode, and not spread over a great area. Tubes are made with or without some form of regulation by which the vacuum, when it is too high, may be lowered. In fact, some tubes have devices by which the vacuum may be both raised and lowered at will. The vacuum of any tube tends to raise with use, except that in the construction of some tubes metals are used, which when over-heated tend to give off gases which lower the vacuum. This tendency to the evolution of gas disappears after a time and then the vacuum will raise with use and after a time, unless there is some plan of regulating the vacuum, the tube becomes so high that it will be impossible to pass a current through the tube, but it will pass around the outside, that being the path of least resistance. At this time unless there is a regulator the only feasible plan to lower the vacuum is to bake the tube, but after having been once baked, the vacuum raises rapidly. The better plan is to buy tubes which have a regulator and then when you wish, you can lower the vacuum readily. Some tubes, as the Mueller, are made with both a lowering and raising device, and are arranged so that the vacuum may be automatically maintained at one point, and for therapeutic work, this is advantageous, but should you desire to use such a tube for radiographic work, the excess of current will jump across to the regulating arm, and soon lower the vacuum to a point where it is useless. This type of tube is especially valuable for use on the static machine. Probably the best tube for all around work on the coil is the heavy anode Gundelach tube, in that it permits the passage of great quantities of current, without any damage to the tube. For the large coils and heavy currents the water cooled tube proves a great saving, as it is not liable to become over-heated. The size of the tube has little to do with its operations, except that the vacuum changes more readily in the small than in the large tube, on account of the amount of gas contained in the bulb. When the multiple spark-gaps are used, it is possible to regulate the resistance, and

thus a tube which would be too low for use, may be raised to the desired point. This brings us to a point which has been often discussed, with no definite conclusion settled upon, some radio-therapists claiming that the high tube is the proper one, while others claim the low tube gives the best results. My experience has taught me that the low and medium vacuum tubes used in connection with the multiple spark-gaps, which regulate to a great extent the penetration, produce the best results. Another point which has been repeatedly discussed is whether or not it is necessary to burn to get good results. Some operators insist that you must burn and burn severely and others take the view that it is not necessary to burn. I believe that every case is a law unto itself, as regards this point, because I have seen excellent results from both kinds of treatment. Hence, I believe that should the milder plan of treatment not prove efficacious, it is much better to produce a dermatitis and after the dermatitis subsides treat it again. There have been cases of idocyncrasy to the X-ray reported, and this should make one cautious in starting the treatment of any case. Cases have been reported in which a dermatitis resulted within a few hours after the initial treatment and again cases will go for a number of days before they show the least signs of irritation, and then it will become excessive. In fact, patients show a sort of cumulative action and it is well to guard against this.

All patients do not respond in the same manner, and by proceeding slowly for the first week or two, if no irritation be present, the treatment may be increased until the desired results is obtained. It might be well to consider the effect produced on the skin by the X-ray exposure. We find that patients exposed to the X-ray a sufficient length of time show the same tendencies as they do to over-exposure to the sun's rays, that is some show a tendency to tan and others to have what is called a sun burn. As a rule, a person with light hair will have a dermatitis before there is any pigment deposited. This is probably due to the natural lack of pigment, because in the person with dark hair we find pigmentation appearing before there is any evidence of dermatitis. We find the effects appearing in the following order: pigmentation or punctate dermatitis; diffused redness, herpes or blebs, and necrosis. As has been stated, some have the deposit of pigment showing first and others the dermatitis, but in the case of pigment deposit, we have the dermatitis occurring later. It begins as red punctate points around the follicles, and rapidly becomes a diffused redness. If the exposures are stopped at this time, the irritation will usually subside in a few days, although it may go on to the formation of vesicles and blebs, and if carried too far, a necrosis of the tissue will result and when this occurs it sometimes takes months for the lesion to heal. It is always best to stop with the appearance of the dermatitis and rest until it has entirely cleared up and then if it is necessary start the exposures again.

With the majority of patients we have a cumulatice action, hence the best course is to wait until all irritation has subsided. This cumulative action probably accounts for the continued improvement of certain cases for some time after the exposures have been discontinued.

The pigmentation caused by the X-ray clears up in a very short time, usually in a few weeks at the outside. If necrosis should take place, it is best to keep the lesion dry and not attempt to hasten the healing process by applying antiseptics, because as a rule, they cause more trouble. Certain drugs, as iodoform,

when used in connection with the X-ray tend to produce more irritation, hence in dressing open sores, it is best to use the plain sterile gauze.

In the therapeutic application of the X-ray, there are a number of points to be taken into consideration, and while the technique of the different operators is not exactly the same, yet I think we are gradually coming to the same conclusions as time and experience work out the details. At first the use of the X-ray was limited to radio-graphic and fluoroscopic work and the treatment of superficial cancerous lesions, but today we are treating both superficial and deep conditions and do not limit the treatment to cancerous troubles; in fact many non-malignant abnormalities respond readily to X-ray treatment. It might be well to mention a few of the conditions aside from malignant growths in which favorable results have been obtained. It has long been considered practically a specific for lupus vulgaris and while the reports on the treatment of lupus erythematosus have not been so favorable, yet a number of cases have been reported as cured. In the chronic cases of acne which resists all other plans of treatment, excellent results can be obtained, but great caution must be exercised not to cause too much reaction. Leukemia and pseudo-leukemia have been relieved by this treatment, in fact it is now considered the best plan to follow for these cases. I treated a case of Hodgkin's Disease last fall in which the improvement was simply remarkable. This case I reported in *The Leucocyte*. The patient first noticed a swelling of the glands of the neck, following a cold. The glands of the neck, axilla and groin became involved and in fact there were nodules over a greater portion of the body.

Under X-ray exposures this case gradually improved until the enlarged glands had nearly all disappeared, when the patient unfortunately contracted a pneumonia as the result of exposure to cold and died after an illness of about a week. Apparently there was no connection between the two conditions.

Chronic Ulcers, particularly as a result of varicose veins, respond nicely in fact it is the sluggish conditions which fail to respond to other kinds of treatment that often show excellent results when the X-ray is used. As an example of this, I have in mind a case of epithelioma of the chin, microscopically diagnosed, which was twice removed by operative measures and then had the plaster treatment twice, but without any healing taking place. The patient was treated by the X-ray for a short time only before the lesion healed and the glands under the chin, which were involved, entirely subsided, and there has been no return of the trouble since last August.

It has been employed in the parasitic diseases of the scalp, and some have entirely cleared up. As a rule, the X-ray has no effect upon syphilitic lesions, and this has been used as a diagnostic point in some cases.

In the early history of the use of the X-ray, it was employed for the removal of superfluous hair, but as a rule, unless a severe reaction is produced, and this is not warranted, the hair will return, and sometimes with greater vigor, hence by many operators it has been abandoned.

Psoriasis has been favorably treated, particularly in some of the cases in which there has been slight involvement and this in isolated areas.

In cases of acute and chronic rheumatoid arthritis the results to be obtained are simply marvelous. I have seen a number of cases in which the joints were severely affected and which failed to respond to all other plans of treatment, which became able to resume their voca-

tions after but few exposures. I have in mind a case that was treated in St. Mary's Hospital a few weeks ago, which had been under treatment by all of the better plans for a period of six weeks, but without benefit. This was a case in which the ankle was involved and the patient was unable to walk. When he received his first X-ray treatment, he had to be brought down in a wheel-chair, and it was impossible to put a shoe on the foot on account of the extensive swelling. He received seventeen treatments, and at the end of that time he was able to walk nicely and left the hospital. The swelling had entirely subsided, and the ankle joint was freely movable. This is simply one of a number of cases in which the same good results have been obtained. Ankylosis following fracture yields nicely to X-ray treatment.

In malignant growths, there are several factors which seem to influence the prognosis, namely: location, age, length of time the condition has existed, that is, the rapidity of growth, and the condition of the patient as regards general health. It has been generally conceded that superficial conditions as a rule yield more readily than the deep-seated, that cancerous growths on the face yield best if they are removed from and do not extend to the mucous border. Age exerts a marked influence in the process of repair in this as well as in other diseases. A point which has been forcibly impressed upon me is the fact that the length of time that has elapsed since the first appearance of a growth greatly modifies the prognosis as regards recovery. In the rapid-growing processes the prognosis is not so favorable as where the trouble has existed for sometime. If the patient is emaciated, and run down to start with, you cannot expect to get the same results as would be possible with a well-nourished individual. The various types of cancerous growths have all been favorably treated, but in some classes, the prognosis is not nearly so favorable as in others. It makes a great difference whether the involvement is slight or extensive. In certain cases, better results are to be obtained by combining operative procedures with the X-ray treatment. This is especially true in many of the cases in which the breast is involved. In these cases, even a course of X-ray treatment before the operation, and then the treatment started immediately after the operation will tend to destroy any little infected points which might have escaped the attention of the operator and might lead to secondary involvement. Certainly the X-ray when used early after operation prevents many cases of recurrence and is the ideal plan of treatment. Up to the present time, the malignant growths have received the greatest attention, because they have been considered practically hopeless as far as other lines of treatment are concerned, hence the trend of thought and investigation has been to find an infallible remedy, but today many other diseased conditions are being treated and benefited. It is true that the X-ray does not cure every case, although in the beginning when remarkable results were obtained in some of the malignant cases, great hopes were aroused, and some went so far as to state that all cases could be cured. Today we realize that all cannot be cured, but when you consider the suffering that attends such cases, if any are helped even by the alleviation of the pain, it is indeed a God-send.

I have at the present time in St. Mary's hospital a case which was operated upon eight years ago by Dr. Donald McLean, but last fall the glands in the neck began to enlarge, and when she was admitted to the hospital, it was almost impossible

for her to swallow food, or articulate well when she spoke. In fact, when I first saw her, I could hardly understand what she said. Dr. McGraw made the diagnosis of carcinoma and said he believed there was no help for her. About two weeks ago, we started to give the X-ray exposures and today she is gaining in strength and weight, is able to eat all kinds of solid food and the speech is nearly perfect. To be sure, there is a doubt as to the diagnosis, because there was no opportunity for making a microscopical examination of the growth. But when a case shows such improvement, we are justified in extending our X-ray exposure with the hope that something may be gained.

While cancerous involvement of the throat does not as a rule offer a good prognosis, we find cases that do recover and it is therefore worthy of a trial.

I have another case which I will show you presently, diagnosed by Dr. McGraw as lympho-sarcoma. This trouble made its appearance about the first of June, 1903, and after repeated efforts on the part of his family physician to clear up the difficulty, the patient was referred to Dr. McGraw, for operation. Dr. McGraw decided that nothing could be done for him in the operative line, and referred the case to me for X-ray treatment. He received his first treatment on December 23, 1903, and has received an average of six treatments a week since that time. When the treatment was started, there was a marked swelling involving the whole right side of the neck. This case is presented to you for several reasons. First, it shows the results obtained; second, it illustrates the point I spoke of in regard to light-haired people; third, to show the effects of mild treatment. I regret very much that I am unable to show you a photograph of the conditions at the first treatment, but a number of physicians have seen the patient at different times and can attest as to the marked improvement. At the present time the swelling has entirely subsided, as is shown by the accompanying illustration. This case has never shown any more resemblance to a dermatitis than you see at the present time, and there has

never been any pigmentation of the skin. A majority of the exposures have been of about six minutes duration with a very weak current. When the treatments were first started, the patient was unable to do any work, but at the present time, he is working a part of the day and is improving in strength. This is certainly another case to further the use of the X-ray, even if it be as a last resort. Many of these cases do not reach the radiotherapeutist until everything else has been tried, and the case is hopeless, hence, we cannot hope to have the results that

might be obtained, were the cases treated early.

Gentlemen, this has been a vast subject to present to you in the short time allotted me, and it has been necessary to leave out much that I should have brought to your attention, but I trust I have succeeded in impressing upon you the value of X-ray treatment.

270 Woodward Avenue.

A FOREIGN BODY IN THE MEATUS ACUSTICUS EXTERNUS, AGGRAVATING AN ACUTE TYMPANO-MATTOIDITIS.*

By EMIL AMBERG, M. D.,
Detroit, Michigan.

On May 17 I was called in consultation to see Miss R. W., aged 16, a High school pupil. I was told that about one week before my visit patient had attended a party and that another participant in the party became sick, showing symptoms of affection of the gastro-intestinal tract. Our patient made an impression of being very sick. Patient did not notice any discharge from the ear, nor could I elicit any history of previous ear trouble. There was very pronounced tenderness over the mastoid process, also rise in temperature. The examination of the canal revealed an unusual appearance in the region of the membrane tympani, resembling the presence of cholesteatomous masses in front of what appeared to be a swollen posterior wall. Continued trials were made to remove the masses by syringing, aided by repeated applications of peroxide of hydrogen, but without any result. Touch by instrument revealed great tenderness. As the patient felt rather weak and miserable and the presence of mastoiditis at any rate necessitated an early operation, I desisted from further trials. I was almost satisfied in my mind that the patient, who had had an attack of typhoid fever some time since must have had an otitis media which had become chronic and had not before manifested itself to her. The whole affection represented itself to me as a mastoiditis with probable complications resulting from a chronic otitis media. I could not imagine that such a severe affection of the mastoid process could develop in the course of five days. The patient herself wrote down the following on July 5, 1904, which reads in part as follows:

"Early in the fall, three years ago, I had an attack of typhoid fever, which lasted four weeks. During the course of the malady, I was never once delirious, *nor was there any pain in the head.* For two years after my recovery I enjoyed good health until I was taken sick again, the first part of last May. At that time I attended a party, at which I wore light party clothing, and the following Sunday morning I woke with a sore throat and feeling very weak and dizzy. I partially recovered from this illness, but on the following Thursday, four days later, I sat out in the open air for a time and that night I awoke with the most excruciating pain in my ear, which kept me awake the rest of the night.

"In the morning, I got a preparation of laudanum and sweet oil from a druggist, with directions to heat it and put it in the ear on cotton at regular intervals. As this gave me no relief, we sent for Dr. H., who took my temperature and found it to be 101°. A few days later he brought with him a specialist for the ear, who also examined the back of the ear, which was very sore and painful to the touch. The

*Written for the Detroit Medical Journal.

doctor said there was an abcess in the bone, so I was sent to Harper hospital for operation. Immediately after the operation the pain in the canal ceased, but within a week I began to notice pain in a new place, back of the ear, and, as the temperature rose, another operation was decided on. After the second operation I recovered quite rapidly and returned home in two weeks, but still the hearing in the left ear was not much improved. The doctor treated me for two weeks at home, after which time I went to his office. My second visit there was one which will never be forgotten.

"And while for the past four years there has been a deafness in the left ear, the hearing is now greatly improved."

The mastoid process was freely opened at Harper hospital on May 18 and a great quantity of pus escaped, which was apparently under high pressure. The secondary operation did not reveal any further essential affection of the mastoid. (The rise in temperature was caused, in my opinion, by an inflammation of the layers outside of the mastoid.)

The patient improved rapidly, but the hearing in the left ear did not become better. During the after-treatment the patient remembered that she could not use the left ear when telephoning, for two years, which statement corroborated my opinion of a chronic affection, probably a complication of the typhiod fever.

During a visit of the patient to my office I decided to investigate again the condition of the central portion of the canal. To my surprise I was able to remove a bean, embedded in desquamated epithelium. This desquamated epithelium had made me believe—in the absence of any history—at my first examination, that I had a chronic otitis media before me.

When I told the patient that she had a bean in her ear she suddenly remembered that:

"One day, about four years ago, while walking with a number of companions, we were followed by a crowd of small boys, who showered us with beans, blown from pea-shooters. About a year after this time I began to notice a little deafness in the left ear, but gave it no attention, as so many people say they are a little deaf in one ear."

Now the explanation of the whole affection assumed an entirely different aspect. The patient had suffered from an inflammation of the naso-pharynx, and the affection spread to the tympanic cavity. The foreign body, the bean, obstructed the passage, absolutely blocked the way from the tympanic cavity into the canal and prevented any drainage. Whether or not a perforation of the membrane had taken place cannot be determined. What was the result?

Pus kept on accumulating and was forced under high pressure into the mastoid. This explains the very sick appearance of the patient, the rapid progress of the affection and the rise in temperature, which was 102° before the operation (taken at Harper hospital) and subsided immediately afterward. After the removal of the foreign body, hearing improved considerably, but a muco-purulent discharge appeared.

It is reported that foreign bodies may remain for a number of years (even fifty years) in the canal without serious consequences. While we must keep in mind that evil and even fatal effects are liable to follow unskilled attempts to remove foreign bodies, the case reported shows, clearly, that the presence of a foreign body in the canal is by no means always of no consequence. In our case, it exercised its influence not only in connection with the function of the organ, but it aggravated a middle-ear suppuration to an extent that threatened the life of the patient much more than it would have done under ordinary conditions.

270 Woodward Avenue.

DETROIT MEDICAL JOURNAL

A MONTHLY EPITOME OF
PRACTICE AND THERAPEUTICS

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The Doctor's Vacation.

Few men work so continuously at high tension with as little opportunity for rest, recreation or relaxation as medical men, for the practice of medicine is an exacting occupation, with anxiety, worry and responsibility a part of every day's work. The stake is human life, health or happiness, and the more conscientious the physician the heavier are the burdens borne. Not the extremely busy man alone, but every practitioner of some years' standing feels the wear and tear as a sort of brain fag after the confinement of a long winter's work. Patients become in a way unwelcome, cases lose their accustomed interest, night calls are unduly irksome and the doctor's usually sunny disposition becomes irascible and subject to acute temperamental fluctuations. As a diagnostician of considerable experience the editor has come to realize the significance of the development of these symptoms in himself and his confrères.

The malady is properly a hyperæsthesia of the sensory nerve endings, those delicate filaments which bring us in touch with daily life. The motor tract is unimpaired, although the cerebral grey cells usually need recharging. The best treatment is the following prescription:

℞ Ext. of Time month +
Exercise.
Ozone.
Good grub.
Good company aa q. s.

Sig. Apply until cured.

To secure the best results, this prescription should be taken exactly as written, as the attempt to apply it in divided doses is attended with but partial success. Every man of established practice needs at least a month each year of absolute mental rest, with a radical change in his manner of living.

The seashore or the mountains, when accessible, offer the needed change of air and surroundings, but to those living in the great middle west Nature has been especially kind. There are hundreds of quiet, restful places along the Great Lakes, while Minnesota, Wisconsin, Michigan and the Province of Ontario abound in lakes and rivers teeming with fish, and the forests shelter abundant game.

A very healthy trend of modern city life is an awakening of interest in outdoor sports and rural surroundings, and the exercise of hunting or fishing makes the ideal vacation for the city doctor. Possibly the practitioner in the country does not feel this call of Nature to the same extent and is equally benefitted by travel or other change of scene. The essential in either case is to drop care and secure mental rest. The laity, at least in cities, are learning to expect a doctor who is worth employing to take a necessary vacation and think more of him upon his return, even though obliged to find a substitute during his absence. Hence a physician in the long run loses few patients by taking the same care of himself as he

does of them, but lives longer, is happier and does better work. Therefore we say to every doctor—take an annual vacation!

A New Aspect of the Race Suicide Question.

Dr. Rowland G. Curtin (*Bulletin of the American Academy of Medicine*), raises the question whether or not the physician is a factor in "race suicide," by reason of the increased cost of accouchement.

He says: "At the time when I first went into practice the charge for a labor was from $10 to $25; only a few physicians charged more. The nursing cost but little, and the outfit was made by the wife. Now we have to confront a fee from $25 to $250; nurse's wages and board for eight weeks, $240; mother's outfit, $15 to $50; child's, $35 to $100. Think of what this bill would be to a clerk that is living up to his means in keeping house. The above does not include many other expenses incidental to the confinement, and the doctoring of the enlarged family afterwards. I fear that soon all the confinements will be made in hospitals, in order to reduce the expenses."

On looking up the locality where babies come so high, we find that Dr. Curtin resides in that city of brotherly love, Philadelphia. Doubtless these infants above alluded to move in the same circle in society with those of Dr. John Lovett Morse, of Boston, who, while in Detroit recently, estimated the cost of modified milk from a Walker-Gordon Laboratory at only 60 cents per diem per infant, which in his opinion any man who ought to have babies at all ought to be willing to pay.

We must look deeper than the above superficial reasoning for the causes of "race suicide," at least in America. The prime factors are: 1. Sterility from antenuptial venereal disease; 2. The increasing unwillingness of American women to become mothers. The higher up in the social scale we go, the more active become these important factors, and among the class of people who can afford them these high-priced babies appear mostly by accident, having miraculously run the gauntlet of douche-bag, condom, emmenagogue pill and catheter. This foretaste of the "strenuous life" in his pre-embryonic days should make this lonely baby vigorous and hardy and well equipped for the struggles of life, for his narrowest escape came very early in his existence.

As a matter of fact, the people who could give children education, culture, refinement and a start in life, shirk their responsibilities, while the poor man, uneducated and unsophisticated as modern society goes, is "fruitful and replenishes the earth."

Hence it would appear that however important the increased cost of living may be as a preventive of marriage, an increased accouchement expense can have little bearing upon lessened reproduction, inasmuch as the class most affected thereby, in theory, is in practice the only class which does its full duty.

Anyway, the profession as a whole may plead "not guilty," for the average fee for confinement cases is too low to embarass even the day laborer who utilizes as he should, the anticipatory period to get ready. Those $250 obstetrical fees are conspicuous for their rarity, for the great mass of infants are born to the "Hoi Polloi" with an average obstetrical fee too ridiculously small to mention. We congratulate Dr. Curtin on his silk-stocking practice, commend his schedule of fees and accessories and request his assistance in a true missionary spirit in persuading the bulk of the profession to charge more than fifty cents an hour for this class of work.

Suicide.

John L. Davis, Medical Director of the Union Central Life Insurance Co., calls attention (*Journal A. M. A.*, July 9, '04), to the alarming increase in suicide in the United States, which now totals nearly 10,000 yearly, the ratio among insured lives being proportionately much greater. For instance, nearly 3 per cent. of the total mortality of the Mutual Life (N. Y.) is due to self-destruction. Some nationalities are far more prone to suicide than others, Bohemians, Poles, Austrians and Germans leading the list, while the happy-go-lucky, pleasure-loving negro seldom takes his own life.

The impulse to suicide varies with the age and environment, almost no age being exempt, though middle life claims the most victims when disaster and defeat grind harder and habits are hard to break.

To lessen this morbid tendency, the author consideres that whatever may diminish our fitful, feverish, strenuous life, mitigate the struggle for position and wealth, and curb the utterances of a sensational press will be steps in the right direction.

EDITORIAL NOTES.

At the January meeting of the Genesee County Medical Society of Michigan (reported in the August issue of the *Journal of the Michigan State Medical Society*) a committee was appointed to draw up a uniform fee-bill and to devise a plan by which the "dead-beat" nuisance might be abated. Dr. J. G. R. Manwaring, chairman of the committee, makes the report, which is an excellent one. He finds it inadvisable to formulate a list of "dead-beats," in the light of the experience of other societies with similar lists—that they proved of little or no assistance.

The fee-bill, however, was drawn up, and appears to be very reasonable. The committee has sensibly left the exact amount of the charges to the individual physician, believing that conditions of practice should to some extent govern the doctor's fees. Some extracts from the list as prepared will show the general character of the charges:

General Practice.

First visit, prescription, and advice, $1 to $3.
Each subsequent visit to same patient, $1 to $2.
Visit with treatment or dressing, $1 to $3.
Night visit between 10 p. m. and 7 a. m., $1.50 to $3.
Additional visit to patient in same family 50c to $1.
Visit and consultation, $5 to $10.
Joint attendance after consultation, $1 to $3.
Mileage in addition to visit, one way, 50c per mile.
Rising at night and prescribing, $1 to $3.
Examination of insane person and certificate, $5 to $25.
Physical examination of chest, $1 to $5.
Small-pox and varioloid, $10.00 per visit.
Other contagious diseases, $1.50 to $3.
Services as medical experts, $25 to $50.
Attendance at coroner's inquest, (autopsy extra) $5.

Office Practice.

Prescription and advice in ordinary case, 50c to $1.
Examination and opinion, $1 to $5.
Vaccination in office, 50c to $1.50.
Fitting truss in office, $2 to $5.
Gynecological treatments, $1 to $3.
Fitting pessaries, $2 to $5.
Gonorrheal cases, each attendance, $1 to $10.
Syphilis cases, $1 to $10.

Obstetrical Work.

Ordinary deliveries, $10.
Detention after six hours, $1 per hour.

Instrumental deliveries and other difficult cases, $5 to $25 extra.
All visits made subsequently, after the first three, the same as for other cases, $1 to $3.
Abortions and miscarriages, $10.
Repairing lacerations at once, extra, $5 to $15.

Surgical Practice.

Capital operations, $100 to $500.
Secondary operations, $25 to $100.
Operation for fistula in ano, $5 to $50.
Opening minor abcesses, $1 to $5.
Tapping hydrocele, $1 to $5.
Extraction of foreign bodies from pharynx, $5 to $50.
Removal of polypi from nose or ear, $5 to $50.
Plaster dressings and other fixed dressings, $2 to $15.
Reduction of hernia by taxis, $3 to $10.
Extraction of foreign bodies from the eye, ear, nose, urethra, wounds, $1 to $25.
Introduction of a catheter or bougie, $1 to $3.

The committee's report also states that it shall be considered dishonorable for a physician to contract for his services to a family by the year, and claims that services are payable when rendered. It is suggested that statements should be sent at least twice a year. In our opinion, every thirty days would be better, as a general thing.

The action taken by the society is commendable, and other organizations would do well to formulate such a list of fees—and then stick to it!

A board of officers for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health and Marine Hospital service will be convened to meet at the Bureau of Public Health and Marine Hospital service, 3 B Street, S. E., Washington, D. C., on Monday, October 3, 1904, at 10 o'clock, a. m. Candidates must be between twenty-two and thirty years of age, graduates of a reputable medical college, and must furnish testimonials from responsible persons as to their professional and moral character. The examinations are chiefly in writing, embracing the various branches of medicine, surgery and hygiene, and oral examinations subjects of preliminary education, history, literature and natural sciences, are also conducted. The clinical examination is conducted at a hospital, and, when practicable, candidates are required to perform surgical operations on a cadaver.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in same order as vacancies occur. After five years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon. Promotion to the grade of surgeon is made according to seniority, and after due examination as vacancies occur in that grade.

Assistant surgeons receive sixteen hundred dollars; passed assistant surgeons, two thousand dollars, and surgeons twenty-five hundred dollars a year. When quarters are not provided, commutation at the rate of thirty, forty and fifty dollars a month, according to grade, is allowed. All grades above that of assistant surgeon receive longevity pay, ten per cent. in addition to the regular salary for every five years' service up to forty per cent. after twenty years' service. Tenure of office is permanent.

For further information, or for invitation to appear before the board of examiners, address Surgeon-General, Public Health and Marine Hospital Service, Washington, D. C.

NEW INSTRUMENTS AND DEVICES.

Mention of new instruments and devices in this department is entirely complimentary and articles illustrated are judged on their merits.

We invite manufacturers and physicians to send us matter suitable for publication under this head. A description of the device and an electrotype or half-tone with a base not greater than two and five-eighths inches should be sent.

Always mention the price of the article in question.

The management cannot undertake to return cuts unless postage for same accompanies the letter with which they are sent.

Porter Mathew's Forceps.

This instrument appears to present a number of advantages over those of similar purpose on the market. The blades grasp the head firmly, but at the same time they avoid producing dangerous compression. No force is wasted in extraction, which is accomplished with comparative ease if care is taken to preserve the proper relation between the traction rods and the shanks. Injury to the pelvic floor and the perinæum may quite generally be avoided, if the instrument is kept in place on the head until delivery is accomplished, while at no stage does the presence of the instrument prevent flexion and rotation of the child's head.

In the March *Canadian Practitioner and Review*, Dr. Adam H. Wright, Prof. of Obstetrics, University of Toronto, has an unusually able article on the use of forceps, and in connection with the instrument under discussion he lays down the following method of application:

"The traction block and handle are laid aside at first, but the blades are applied with the traction rods in place. The patient is in the dorsal position.

"Take the left blade in the left hand, the thumb in the angle of the traction rod, and the fingers encircling the traction rod and handle, and keeping them close together. Introduce the fingers of the right hand into the vagina and apply the blade along the palms of them as in the ordinary forceps application.

"The handle of this blade being kept back out of the way by an assistant, grasp the right blade in the right hand as follows: The traction rod is carried far enough forward to bring it in front of its handle, the fingers encircling the handle, the butterfly nut of the fixation screw is run to the end of its screw, and the screw itself turned out, away from the traction rod, and allowed to project between the first and second fingers; the traction rod is kept in position by gentle pressure with the thumb on the outer side of the angle, the rectangular part of the rod projects backward between the thumb and fingers. Grasping the blade thus it is applied like the second blade of the ordinary forceps; as the lock is closed the traction rod falls easily back into position behind its handle. The fixation screw is then turned into its place and the nut screwed home, not tightly, but just enough to keep the handles as closely together as they can be brought by gentle pressure with the hands. Then take the traction block, open its catch widely and run the butterfly nut out to the end of its screw. Then slip the block on to the rods, taking care that the catch is on the side next to the notches in them. Slip it up the rods, counting with the fingers three notches below it, and close the catch into the fourth notch, which is the position for normal pelvis, and screw the nut home. For flat pelves the block is fixed in the fifth, sixth or seventh notch until that notch is found in which we get the best results on traction. For "small round pelvis" the block is fixed similarly at third or second. The handle is then hooked over the bar provided for that

purpose, not over the catch. Traction is made keeping the traction rods just parallel with the handles, not pushing against them nor widely separated from them. All traction must be made with the handle, neither the traction rods nor the handles of the blades being touched. As the head comes down the handles will be found to turn upwards and forwards. This indicates the direction in which traction is to be made, and each change in position must therefore be closely followed by the traction rods.

"You will find it comparatively easy in certain cases to apply the blades to the sides of the head. If, for instance, the head is in the cavity of the pelvis with the occiput towards the left front you have only to introduce the blades so that the left blade will be slightly behind on the left side and the right blade slightly forward on the right side. Sometimes you can scarcely avoid doing this, to some extent, at least.

Traction. Seize the handle which is attached to the traction rods with the

"In removing the forceps the traction block and handle is first removed. The fixation screw is then undone and turned outwards. The right traction rod is then carried in front of its handle, and the right blade removed in the reverse direction of its application. The left blade is similarly removed except that its traction rod does not need to be carried forward."

After strongly suggesting the necessity for the greatest care in the method of application of the blades, he says:

"You may, I think, act according to the following rules:

"Try to ascertain the exact position of the child's head.

"Endeavor to apply the blades to the sides of the head without regard to the sides of the pelvis, *i. e.*, employ the French method.

"If you are not able to accomplish this, apply the blades laterally, as to the pelvis, but do not drag the head far before removing and readjusting the blades.

hand, and while pulling see that the rods and shanks are kept just touching or almost touching each other. While you are extracting the child you will find that the traction is exerted exactly in the right direction at all times as the head passes through the pelvis and emerges from the vulva.

"Flexion will be properly maintained, and when incomplete will frequently be promoted.

"Rotation will be allowed.

"The head will, so far as possible, be prevented from bearing too heavily on the pelvic floor.

"The head will be lifted over the perineum.

"As the head is brought through the vulva it will not be extended so as to cause the chin to cut through the perineum.

"In using traction do not attempt to extract rapidly. You will remember that during normal labor after the vault of the

head reaches the pelvic floor, its expulsion from the vulva should occupy at least from twenty to thirty minutes. Extraction with the forceps should occupy no less time.

"Pull gently on the handle, as far as possible, during pains, and desist during the intervals between them. If you cannot detect uterine contractions pull intermittently. Endeavor to extract with the smallest amount of force. Use one hand at first. This will generally be sufficient. In exceptional cases it will not; and then you will require more force and may use both hands.

"As soon as the head reaches the pelvic floor you have to consider the danger of injury to that structure and the perineum.

"You know in connection with normal labor that when the thighs are flexed on the body a tightening of the skin around the vulva may be noticed. You should then direct your patient to extend the legs and thighs in order to slacken the tensions around the vulva. This tightening is still more apt to occur when the thighs are fastened in the flexed position with some form of leg-holder. It is extremely important therefore to observe the following rule:

"As soon as the head commences to press on the pelvic floor remove the leg-holder and allow extension of the thighs, i. e., allow the legs and thighs to hang over the edge of the bed or over the end of the operating table toward the floor. In an ordinary bed the patient's feet may rest on the floor while the nurse keeps the thighs separated by holding the knees outwards.

"While Milne Murray generally applies traction during the pains, he refers to one group of cases where a different plan should be adopted. It sometimes happens, especially in elderly primiparae, that every uterine contraction when the head in low is accompanied by spasmodic action of the juscles of the pelvic floor or tightens the vulvar orifice and causes rigidity of the pelvic floor and perinieum. In such a case, deepen the anæsthesia and employ traction only during the intervals between the pains.

"As I have before intimated, I think, in the majority of cases in the high and middle operations, your blades will generally grasp the head obliquely.

"As soon as the position of the blades shows that rotation of the head has commenced, remove the blades, reintroduce and readjust them. Otherwise do not remove the forceps until after complete delivery of the had.

"During the delivery of the head, even while it is passing over the perinieum, continue to pull on the cross-bar without regard to the application handles.

"Many, if not most, obstetrical authorities in the United States use the traction rods only in high and mid operations, some use them only in the high operations.

"Some authorities, both in Great Britain and the United States, relax the fixation screw during the intervals between making traction."

Dr. L. S. McMurty, the new president of the A. M. A., is the second Louisville physician to be so honored in the last six years. Dr. J. M. Matthews, of Louisville, was president six years ago. Dr. McMurty is president of the faculty of the Hospital College of Medicine, where he holds the chair of abdominal surgery. He is well known throughout the country.

Dr. Walter P. Manton, of Detroit, was elected secretary of the section of Obstetrics and Diseases of Women of the A. M. A.

PROGRESS OF MEDICAL SCIENCE

Transient Monocular Blindness.

Jamison (*Oph. Record*, June, 1904), reports a case of this rare condition.

Subject—Laborer, aged 84. Perfect physical condition for his age. Pulse full and bounding. Inquiry revealed that he had been taking a mixture for his kidneys given for his wife who was a rheumatic. Afterward it was found he had been taking oil of wintergreen 2m. three times a day.

There was no history of blindness in the family, no pain in the eye, and no history of former ocular trouble.

Objects would become dark before right eye, finally fading to nothing. These periods lasted some five minutes. Ophthalmoscopic examination between periods showed lens and media clear, normal fundus, though the central artery and its branches showed a trifle fuller than usual.

During the course of an attack, central artery was seen to fade into a mere white line, closely followed by fading of the vein and its branches. Optic disc became perfectly pale and white, retina pale, but through it the choroidal vessels could be seen radiating in all directions from outer border of disc. When the central artery had faded, patient had no perception of reflected light with the affected eye.

In about two minutes time central artery again became visible, followed by filling of the vein. Vision returned.

Posy, writing on this subject, imputes loss of vision to some spasmodic affection of the vessels, the spasm not being maintained long enough to cause any permanent change in the tissues.

May thinks the spasm due to endarteritis.

It is evident that the blood-current was interrupted in some place in its course from heart to retina. The lack of symptoms other than monocular blindness would leave only the opthalmic artery from the internal carotid to retina to be considered.

The fact that the interruption could not have taken place in the bony optic canal is evidenced by the choroidal arteries being distinctly seen during absence of blood in central artery of the retina and its branches, for the ciliary arteries which supply the choroid are given off after the ophthalmic artery leaves the bony canal.

In the author's opinion the temporary blindness might be caused by any change in the pressure by the subdural or subarachnoid fluids which reached the central artery which would be sufficient to cause collapse or spasm of its walls, the optic nerve receiving investments of the three verebral meninges, the pia sending a process around the arteria centralis retinæ.

The pressure in this case was probably caused by the heart stimulant which gave him the bounding pulse.

Some anatomical difference or structural change would account for the symptoms showing only in one eye.

Penetrating Wounds of the Abdomen.

M. L. Harris (*Annals of Surgery*, March) discusses this subject, and cites a number of cases, concluding as follows:

1. In penetrating wounds of the abdomen, there are absolutely no known symptoms which indicate injury to any of the viscera, except those in connection with the urinary tract, stomach, and occasionally the lower bowel.

2. Except those relating to general shock, all symptoms following such wounds indicate either internal hemorrhage or peritonitis.

3. To wait for symptoms of perforation of the intestine means to wait until peritonitis has developed, therefore,

4. Every bullet or stab wound which penetrates the abdominal cavity should be operated on at the earliest possible moment in order to anticipate the advent of peritonitis.

5. No time should be wasted in attempting to demonstrate the presence or absence of intestinal perforation by such means as the rectal insufflation of gases or vapors, or the analysis of recollected intraperitoneally injected air or liquids.

6. It is essential to systematically examine the entire gastro-intestinal canal in all cases, regardless of the point of entrance of the wounding body.

7. Whenever the alimentary canal has been perforated, suitable drains (the author prefers the so-called cigarette drains) should be placed either through the operative incisions or counter-incisions, as may appear best suited to the individual case.

Mortality in Appendicitis.

Ochsner (quoted in *Progressive Medicine*, June, 1904) believes that the mortality in appendicitis may be reduced to a minimum by giving no food, drink or medicines by the mouth during the acute attack, and by operating promptly in the acute attack, or in the interval between attacks. His views are summed up as follows:

1. The mortality in appendicitis results from the extension of infection from the appendix to the peritoneum, or from metastasic infection from the same source.

2. This extension can be prevented by removing the appendix while the infectious material is still confined to this organ.

3. The distribution or extension of the infection is accomplished by the peristaltic action of the small intestine.

4. It is also accomplished by operation after the infectious material has extended beyond the appendix and before it has become circumscribed.

5. Peristalsis of the small intestine can be inhibited by prohibiting the use of every form of nourishment and cathartics by mouth, and by employing gastric lavage in order to remove any existing food or mucus from the stomach.

6. The patient can safely be nourished during the necessary period of time by means of nutrient enemata.

7. In case neither food nor cathartics are given from the beginning of the attack of acute appendicitis, and gastric lavage is employed, the mortality is reduced to an extremely low percentage.

8. In cases which have received some form of food and cathartics during the early portion of the attack, and are consequently suffering from a beginning diffuse peritonitis when they come under treatment, the mortality will still be less than 4 per cent. if peristalsis is inhibited by the use of gastric lavage and the absolute prohibition of all forms of nourishment and cathartics by mouth.

9. In this manner very dangerous cases of acute appendicitis may be changed into relatively harmless cases of chronic appendicitis.

10. In my personal experience no case of acute appendicitis has died in which no food of any kind and no cathartics were given by mouth from the beginning of the attack.

11. The mortality following operations for chronic appendicitis is exceedingly low.

12. Were peristalsis inhibited in every case of acute appendicitis by the methods

described above—absolute prohibition of food and cathartics by mouth, and gastric lavage—appendectomy during any portion of the attack could be accomplished with much greater ease to the operator and correspondingly greater safety to the patient.

Inquiry into the Prevalence of Middle-Ear Suppuration and Mastoiditis, during last Winter and Spring.

Detroit, Michigan, August 15, 1904.

Dear Doctor:—

It appears that during last winter more cases of middle-ear suppuration and more cases requiring surgical interference for affection of the mastoid have occurred than in previous years. The undersigned would be very much obliged if you would advise him, for statistical purposes:

1. Whether or not you observed a greater number of cases of middle-ear suppuration in the winter of 1903-1904 and in the spring of 1904 than in preceding years. (If possible, give number.)

2. Whether or not the course of this affection was more severe.

3. Whether or not a number of cases, greater than in preceding years, required surgical interference for mastoiditis.

Any additional information given in connection with the subject would be welcome.

Emil Amberg, M. D.

270 Woodward Avenue.

The *Dominion Medical Monthly* (Toronto) publishes an interesting abstract of a paper written by Victor C. Vaughan, M. D., of *Ann Harbor,* Mich. The distinguished dean of the medical department of Michigan University, located at Ann Arbor, is apparently unknown to fame in Toronto.

The thirty-seventh annual meeting of the Canadian Medical Association will be held in Vancouver, August 23 to 26.

BOOK REVIEWS

The Principles and Practice of Surgery, Designed for Students and Practitioners. By George Tully Vaughan, M. D., (Univ. of Va.), Assistant Surgeon-General, Public Health and Marine Hospital Service of the United States; Professor of the Principles and Practice of Surgery, Georgetown University, Washington, D. C. Illustrated. Pages, 533. Price, Cloth, $3.50, Half-Leather, $4.00. J. B. Lippincott Company, Philadelphia and London, Publishers, 1904.

This book is one of Lippincott's New Medical Series, which is edited by Francis R. Packard, M. D., and is something of a novelty in that it does not attempt to do more than is reasonable in the space it occupies. Its five hundred odd pages are devoted solely to the subject of general surgery. There is no disposition on the part of the author to strike out into special fields, which he properly leaves to writers in those special provinces of the surgeon. The book is full of good, practical thought and expression along the lines of general surgery, just what the student needs, and what the surgeon himself is likely to find mighty handy now and then, when he needs it most. Dr. Vaughan remarks in his preface that his experience in teaching has shown him the need for a book on the plans he has suggested; and inasmuch as his finished work has followed carefully the ideas laid out, it may be expected to fill a want that has been felt by others besides its author.

Large clinical experience gives a man a certain familiarity with certain broad principles of surgery and a number of years of teaching fit him to express these principles in the smallest possible space and in the fewest possible words. In this age of specialists it must not be forgotten that there are such things as general

practice in both medicine and surgery, and the man who wants to become a real specialist must first of all be a real general practitioner. Dr. Vaughan's book will help him toward this desirable end.

A Text-book of Human Physiology. By Albert P. Brubaker, A. M., M. D., Professor of Physiology and Hygiene in the Jefferson Medical College; Professor of Physiology in the Pennsylvania College of Dental Surgery; Lecturer on Physiology and Hygiene in the Drexel Institute of Art, Science, and Industry. With Colored Plates and 354 Illustrations. Pages, 692. Price, Cloth, $4.00 Net. P. Blakiston's Son & Co., Publishers, 1012 Walnut St., Philadelphia, Pa., 1904.

Twenty years of experience are ordinarily understood to count for something, and in the case of Dr. Brubaker they evidently count for a great deal. His long training has given him the somewhat rare faculty of being able to separate the non-assentials and to see that they are kept out of consideration. The same training has taught him what is vital and this has been included in the book under consideration, which is destined to take a high place among modern works on physiology. The text is well written, well arranged and well illustrated, and the man who makes a careful reading of it, be he student or practitioner, cannot fail to be greatly benefitted thereby. The idea of the author has been to keep constantly in mind the needs of the student who is preparing for practical, professional work and for this reason he has presented such facts as show, not only the conditions surrounding the tissues and organs of the body in their normal state, but which will be of material aid in understanding their abnormal manifestations in disease.

Starting from a basic consideration of the chemic composition of the human body and the physiology of the cell, Dr. Brubaker goes on to develop his theme logically and clearly. General subjects are treated at length and special divisions of a general subject are taken up in minute detail that makes obscure points clear, the text being supplemented by numerous excellent illustrations.

Chapter XII, on the circulation of the blood, is an excellent example of the care with which the text is written. Although it is exhaustive, yet it is condensed, and the best modern authority on the subject is before the reader. Without attempting in any way to be didactic, the author impresses upon the reader that he is speaking "as one having authority," and the idea grows on one that he knows what he is talking about and how much he ought to say about it.

The Blakiston books are universally well published, and in the present case the publishers have stood solidly back of the author, if the finished product can be taken as a guide. It is a wholly admirable book, and well worth the price that is asked for it.

The leading article in *The Living Age* for July 30, was "Count Tolstoy on the War." This is the complete text of the ten-column letter in *The London Times*, in which Count Tolstoy recently arraigned the Russian government and the Czar with such vehemence that the Russian Council of State had under serious consideration the punishment of the author for his plain speaking. It is in the count's most characteristic and scathing style.

A straw which shows the wind's direction is the action of the St. Clair County Medical Society of Missouri, which has recently modified its ethical regulations governing membership. Last month two members from homeopathic colleges were admitted.

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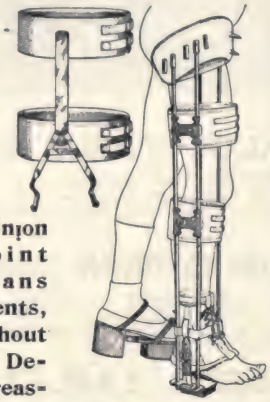

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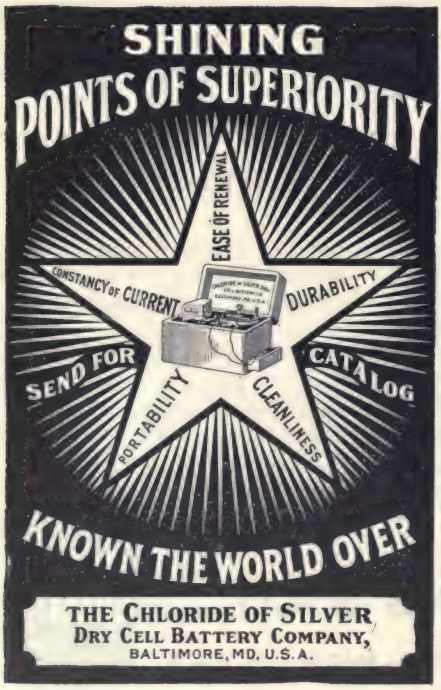

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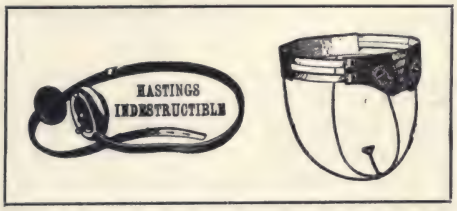

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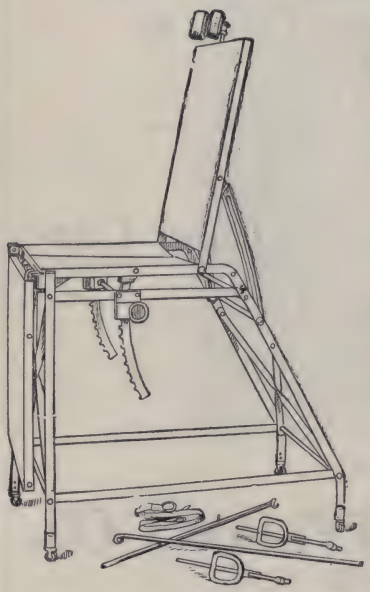

Height of seat 31 inches. Back can be set at any angle desired, and by letting down any angle may be obtained that would be convenient for operation or an examination of eye, ear, nose, throat or chest and for extracting teeth.

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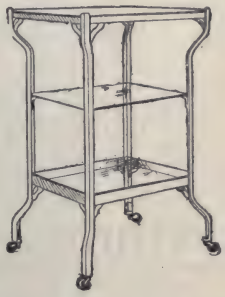

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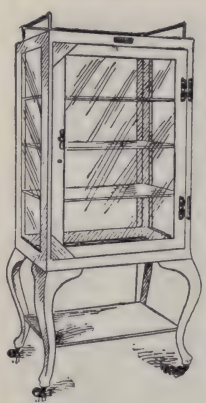

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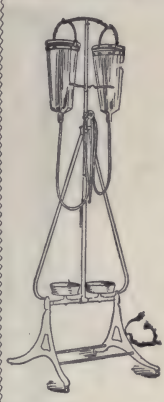

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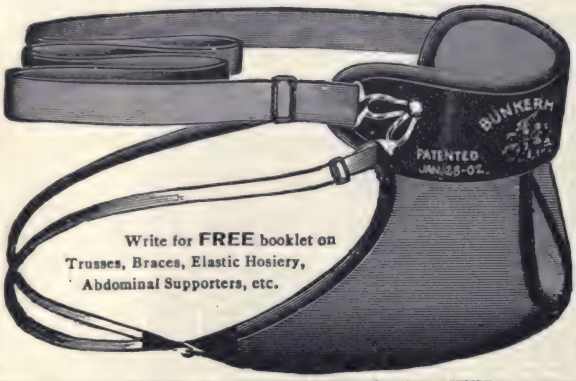

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Treatment of Chronic Ulcer of the Leg of Long Standing.

By HORATIO W. A. COWAN, M. B. C. M. (Aberd.)

(From The Lancet, London, Eng., July 2, 1904.)

At the beginning of the present year I was called to a woman, aged 54 years, who had a chronic sloughing ulcer for 22 years, situated on the outside of the left leg, some 10 inches long and three inches wide, with indurated edges and some thrombosis of the veins of the inside of the knee. Having first cleansed the ulcer with charcoal poultices for two days, I applied wet butter-cloth and then spread Antiphlogistine over it, after which cotton wool and a bandage were put on. This was done every day by the patient's friends for four months. The ulcer is now quite healed over, and the induration is all gone. She is able to resume her ordinary housework. I publish this case in the hope that it may be useful to others, as Unna's paste and all sorts of methods had been previously tried. I may say that I have no personal interest in Antiphlogistine.

Enteroclysis.

By SOL. NEWMAYER, M. D., Phildelphia, Pa.

Among the varied causes of convulsions none plays a more frequent and important part than auto-intoxication. They are more frequent in children, due generally to a possible over-feeding, improper food or constipation. The intestinal canal contains a variety of toxins, derived from the ingesta, bile and putrid material. There is continuous absorption from the intestines, including the taking up of toxins.

In the acute infections, where convulsions are ofttimes a forerunner, auto-intoxication from the intestinal tract undoubtedly is of no minor importance. Infections are the result of microbes and we know these bacteria produce something injurious to the system,—they elaborate poisonous ptomaines or toxic substances. Nature tries to rid the body of this poison through its various channels of elimination, one of which is the intestinal canal.

It is here we can aid nature with our antiseptics. The value of internal intestinal antiseptics I believe is greatly over-rated. Many of these drugs are soluble and absorbable and those that are not are so often given in such small doses that in the long journey from the mouth through the intestinal tract, they have spent most of their value before they have proceeded far.

Not to employ internal antiseptics would be unwise, but I would urge a more liberal use of antiseptic solutions by means of the rectal tube. This enteroclysis has not only its antiseptic value, diminishing the toxicity of the intestinal tract, but ofttimes an antipyretic action. This mode of treatment has not been very popular with the physician because of the unclean work, but I am confident the results well repay one for the labor.

In all cases of convulsions, immaterial of the cause, and in any other condition pointing to auto-intoxication, I flush the lower bowel with a solution of Glyco-Thymoline one or two ounces to the quart of water.

Glyco-Thymoline is always kept in my emergency grip.

Neutric Conditions in Women.

Prof. Charles J. Vaughan, Chair of Gynaecology, Atlanta College of Physicians and Surgeons, writes: "Neuralgia constitutes the great cause of danger from the employment of hypnotics and narcotics, which only afford relief by numbing, but effect no cure. On the other hand, the formation of a drug habit rather aggravates the condition from which relief was originally sought. Neurasthenia, neuralgia and other manifestations, either of an active or passive character, are common and are always peculiarly rebellious to treatment. Cerebro-nervous affections peculiar to women associated with pathological disturbances of the reproductive organs are legion, and most trying to physician and patient. I have found nothing so well suited to these cases as Antikamnia Tablets, administered in doses of from one to three tablets and repeated every one, two or three hours according to the attendant's judgment. These tablets afford complete relief without fostering a drug habit and their exhibition is attended with no unpleasant after-effects. For the relief of painful menstruation there is no combination of remedies so generally successful as Antikamnia and Codeine Tablets. Their sedative, analgesic and anodyne properties especially commend them in the neuralgic and congestive forms of this distressing affection."

Amenorrhoea.

Dr. E. C. Willey, of Louisville, Ky., in the Southern Practitioner, says:

The treatment of amenorrhoea must comprehend attention to general considerations, and special indications must be remembered in the various expressions of amenorrhea.

"The treatment must, in a word, comprehend remedies and measures which are indicted by the etiological factors present in every case which comes up for treatment. When the amenorrhea is caused by having contracted cold, the patient should have a warm sitz bath, and hot applications should be applied to the abdomen and thighs. Often a hot vaginal injection will serve a most useful purpose, and a laxative, preferably a saline, will greatly aid in bringing on the flow.

"In amenorrhea, delayed menstruation and dysmenorrhea, Ergoapiol (Smith) has acted in my hands in a most satisfactory manner. In scanty menstruation, I found it particularly valuable, and I shall enter in detail about one of this character, later on in this article, where this agent brought on a full menstruation and the general health of the patient began to improve at once. When mental perturbation is a factor in these cases it is manifestly the duty of the physician to have the environments of the patient made as quiet as possible, and anti-spasmodic or nerve sedatives should be added to the treatment.

"When amenorrhea is associated with syphilis, the uric acid diathesis or morbid condition must receive correct treatment. My experience with Ergoapiol (Smith) is such that I regard it as an indespensible remedy in all expressions of amenorrhea along with the proper remedies for any diseased condition associated in the causation of the affection. Of course these cases where the amenorrhea is due to atresia of the cervical canal, and to any other condition which is remedial only by surgical means, drugs will prove of no avail. The same can be said of instances in the amenorrhea due to a rudimentary state of the female organs of reproduction.

"A lady some time ago brought her daughter to my office for treatment of amenorrhea. The girl was 18 years old and was visibly anaemic. She had an indifferent appetite and was more or less dispirited. She had enough menstrual flow each month to stain the napkin, but that was all that could be said. I had this patient take Ergoapiol (Smith), one capsule after each meal, and on going to bed regularly for a month. At the next menstrual period the discharge was without pain and free, and the quantity and color was as natural as she had ever known her menstruation to be. She took Ergoapiol (Smith) in the same way another month, and then ceased to have any further trouble; she is full of spirit, and, in a word, well."

A New High Frequency Coil.

At the recent meeting of the Massachusetts Medical Society, a very unique coil was exhibited which attracted a great deal of attention.

The coil itself is mounted on a highly finished cabinet, with all the working parts out of sight, and with simply the switches and terminals on the outside. The interrupter is novel, absolutely noiseless, and positive in operation, requiring no

adjustment or attention even in a run of many hours. The frequency of the coil is extremely high, and the quantity of the current large.

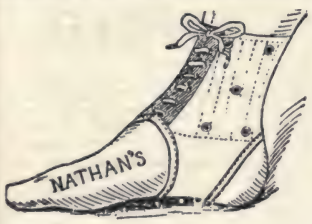
In applying the current, a crown breeze of large volume, very similar to that from a very large Static machine, may be given the patient, or the various metal or glass electrodes may be used. There is not the slightest danger of accidentally sparking the patient. By means of the sponge electrodes, a sort of faradic effect may be produced. Also, a sensation of heat, or the combination of the two. An incandescent lamp may be lighted to full brilliancy when brought in circuit with the patient.

For X-Ray work, the machine is very satisfactory and extremely easy on tubes, much resembling a Static machine. By a very simple contrivance, the bones may be shown dark or light at will, without change in tube or vacuum.

A bulletin describing this apparatus is now in preparation, and Swett & Lewis Co., 18 Boylson St., Boston, Mass., will be glad to send it to anyone interested, on request.

Nathan Anklet Supports.

Something that a physician will find of great value in many of his orthopedic cases are the Nathan Anklet Supports. They are designed on simple and effective lines, and are useful for the support of weak, sprained or wrenched ankles; they slip over the foot, and lace up the front of the ankle, so that they are easily worn under a loose shoe. Light in weight, additional comfort is secured to the patient by a ventilating device which keeps the support from unduly heating the ankle. Those who wear them are secure against bow-leg, and when this condition is present, wearing the support is of material service in effecting a cure. They are manufactured by the Nathan Anklet Support Co., at 88-90 Reade St., N. Y. C., and the same firm also manufacture a flexible support for the arch of the instep which corrects the deformity of flat-foot in a most satisfactory manner. The latter have had the endorsement of eminent authorities in orthopedic work and they will be found entirely capable of doing the work for which they are designed.



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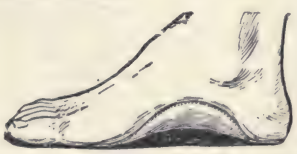

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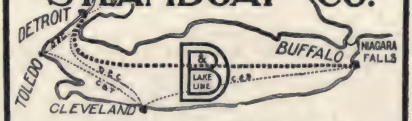

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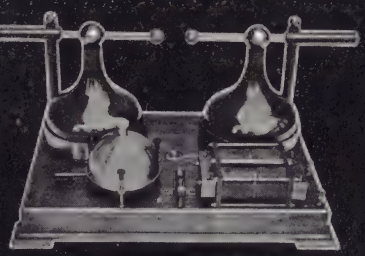

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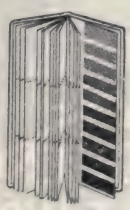

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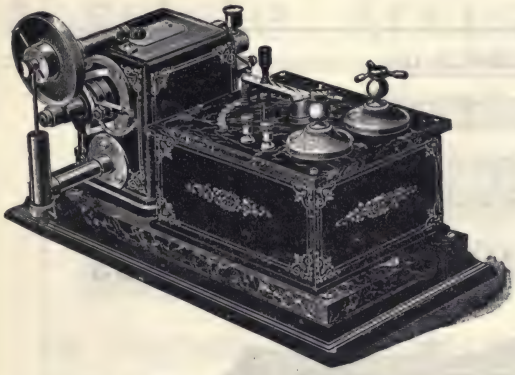

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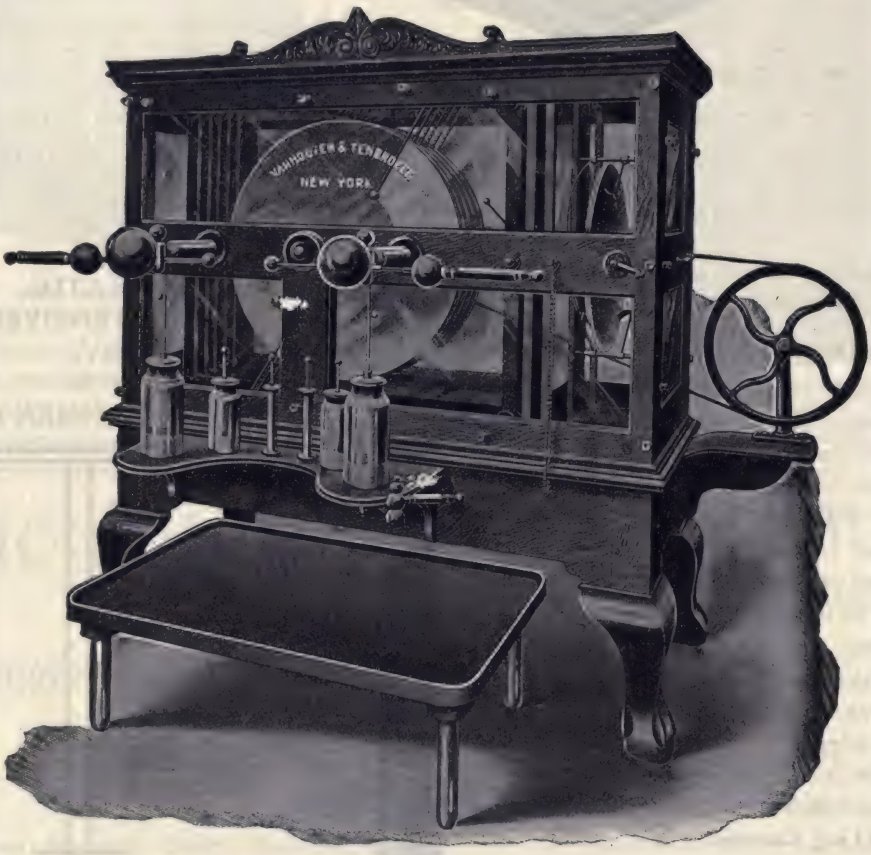

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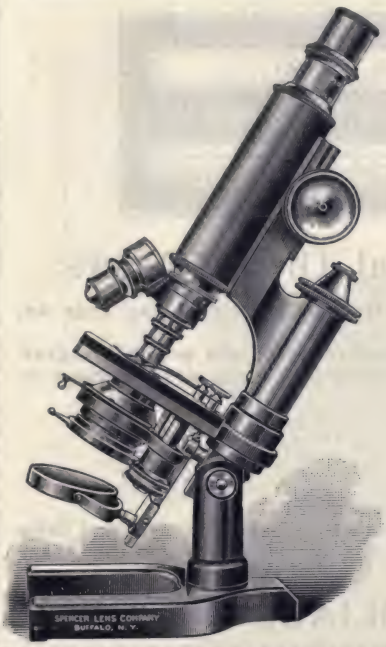

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